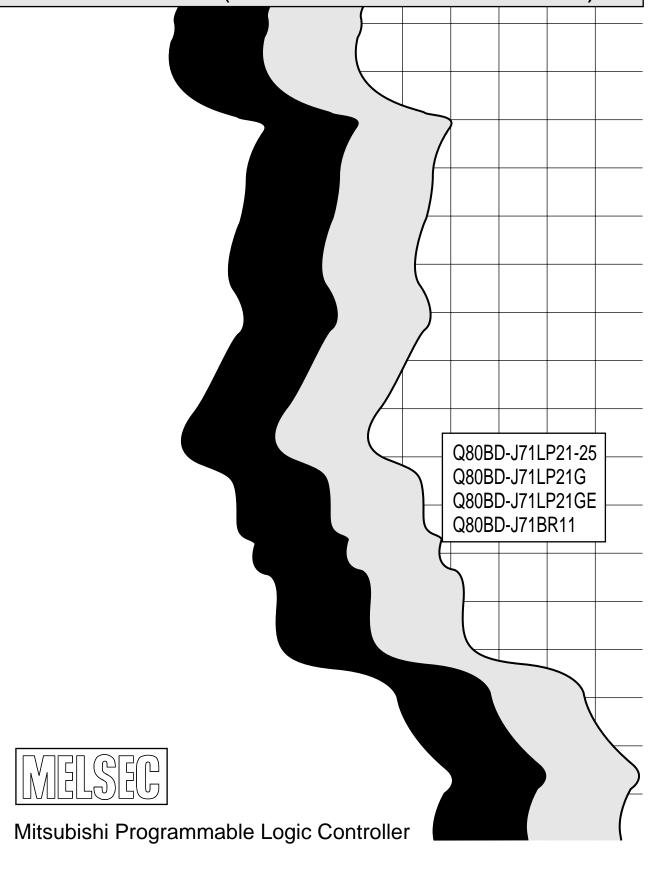
MITSUBISHI

MELSECNET/H Interface Board

User's Manual (For SW0DNC-MNETH-B)



SAFETY PRECAUTIONS •

(Be sure to read these instructions before using the product.)

Before using this product, read this manual and the relevant manuals introduced in this manual carefully and handle the product correctly with full attention to safety.

Note that these precautions apply only to this product. Refer to the user's manual of the CPU module for the PLC system safety precautions.

In this manual, the safety instructions are ranked as "DANGER" and "CAUTION".



Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Note that failure to observe the \triangle CAUTION level instructions may also lead to serious results depending on the circumstances.

Be sure to observe the instructions of both levels to ensure personal safety.

Please keep this manual in accessible place and be sure to forward it to the end user.

[Design Instructions]

< DANGER

- Make sure to see this manual for information about each station's operating status when a communication error occurs in the network. Erroneous outputs and malfunctions may result in serious accidents.
- Provide a safety circuit outside the PLC so that the entire system will operate on the safety side even when an error occurs with the personal computer.

There is a risk of an accident due to faulty output or malfunctioning.

- (1) Construct circuits outside the PLC, including an emergency stop circuit, protection circuit, interlock circuit for reciprocal operations such as forward and reverse, and interlock circuit for positioning high and low limits to prevent damage to the equipment.
- (2) If the station in which the MELSECNET/H board (Q80BD-J71LP21-25/Q80BD-J71LP21G/Q80BD-J71LP21GE/Q80BD-J71BR11) is installed is disconnected from the data link due to a data link error, the data output from that station and written in other stations will remain the same as immediately before the error occurred in the data link. This data will be retained until the data link for that station is reopened (returned to system). Provide a mechanism to monitor the status of data link and handle errors for each station that is connected to the data link system.

⚠ CAUTION

• Do not bunch the control wires or communication cables with the main circuit or power wires, or install them close to each other.

They should be installed 100 mm (3.9 inch) or more from each other.

Not doing so could result in noise that would cause malfunctioning.

[Installation Instructions]

↑ CAUTION

- Use the MELSECNET/H board in an environment as described in the general specifications listed in this operating manual.
 - If the board is used in an environment outside the ranges described in the general specifications, it may result in an electric shock, fire, malfunctioning, damage to or deterioration of the product.
- Securely mount the MELSECNET/H board to the PCI bus slot of the mounting device.
 If the MELSECNET/H board is not mounted correctly, this may lead to malfunctioning, failure or cause the board to fall.
- Insert the communication cable securely into the MELSECNET/H board connector. After it has been inserted, check to make sure that it is not being lifted up.
 - A faulty connection can lead to faulty input or output.
- When mounting the MELSECNET/H board, take care not to become injured by the components that are installed or surrounding materials.
- Always make sure to touch the grounded metal to discharge the electricity charged in the body, etc., before touching the MELSECNET/H board.
 - Failure to do so may cause a failure or malfunctions of the MELSECNET/H board.

[Wiring Instructions]

DANGER

- Always turn off all external power before performing work such as installing the MELSECNET/H board and wiring.
 - If all power is not turned off, there is a risk of electric shock or damage to the product.
- When turning on the power and operating the module after having installed the MELSECNET/H board and doing the wiring, always attach the cover for the device module in which the MELSECNET/H board is installed.

There is a risk of electric shock if the module cover is not attached.

↑ CAUTION

 Always turn off all external power before performing work such as installing the MELSECNET/H board and wiring.

If all power is not turned off, there is a risk of electric shock or damage to the product.

⚠ CAUTION

- Perform soldering the coaxial cable properly.
 If the soldering is incomplete, it may cause the module malfunction.
- For the communication cable, specialized skills and tools are required to connect the plug and cable. The connector plug itself is a custom part.
 - When purchasing, consult with the nearest Mitsubishi Electric System Services, Inc. If the connection is incomplete, this can result in a short, fire or malfunctioning.
- Be sure to fix communication cables leading from the MELSECNET/H board by placing them in the duct or clamping them.
 - Cables not placed in the duct or without clamping may hang or shift, allowing them to be accidentally pulled, which may cause damage to the MELSECNET/H board or cable, or malfunction due to bad cable contacts.
- When removing the communication cable from the MELSECNET/H board, do not pull the cable.
 Pulling the cable that is still connected to the MELSECNET/H board may cause damage to the MELSECNET/H board or cable, or malfunction due to bad cable contacts.
- Take care that foreign objects such as chips or wiring debris do not get on the MELSECNET/H board.

This can result in fire, breakdowns or malfunctioning.

[Startup/Maintenance Instructions]

DANGER

- Do not attach or remove the communication cable while the power supply is on. This may result in malfunctioning.
- Tighten the board fixing screws after turning off the power supply.
 There is a risk of electric shock if the screws are tightened while power is on.

↑ CAUTION

- Thoroughly read the operating manual and carefully check to make sure everything is safe before performing operations such as making changes to the program while the module is operating, forced outputs, RUN, STOP and PAUSE.
 - Operation errors will result in damage to the equipment or accidents.
- Do not dismantle or rebuild the MELSECNET/H board.
 This will result in breakdowns, malfunctioning, injury or fire.
- Always turn off all external power before installing or removing the MELSECNET/H board.
 If all power is not turned off, this will result in failure of the MELSECNET/H board or malfunctioning.

⚠ CAUTION

- The MELSECNET/H board internal microprocessor reaches very high temperatures when it is running. Do not touch it directly when replacing the MELSECNET/H board.

 This will result in breakdowns, malfunctioning or injury.
- Always make sure to touch the grounded metal to discharge the electricity charged in the body, etc., before touching the MELSECNET/H board.

Failure to do so may cause a failure or malfunctions of the MELSECNET/H board.

[Disposal Instructions]



• When disposing of this product, treat it as industrial waste.

REVISIONS

* The manual number is given on the bottom left of the back cover.

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Print Date	* Manual Number	Revision			
Nov., 2000	SH (NA)-080128-A	First printing			
Mar., 2001	SH (NA)-080128-B	Model addition			
		Q80BD-J71LP21G, Q80BD-J71LP21GE			
		Correction			
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		Subsection 7.1.2, Section 7.4, Subsection 8.2.3, Subsection 9.1.2,			
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		Section 10.8, Section 12.2, Chapter 13			
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		Addition			
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		Addition			
		Precautions for use, Generic Terms and Abbreviations, Section 1.2,			
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		Section 10.3, Chapter 13, Section 14.3, Subsection 14.3.1,			
		Subsection 14.5.4, Section 14.6			
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Japanese Manual Version SH-080129-E

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

Precautions for Use

(1) Transfer function between loops and routing transfers

The MELSECNET/H board cannot be used as a relay station for the transfer function between data links and during routing transfers.

If the transfer function between data links and routing transfers are used, use the network module as a relay station.

(2) Remote I/O Network

The MELSECNET/H board cannot be used in a remote I/O net. It can be used only in a PLC to PLC network.

(3) Multi-processor-compatible personal computers

The communications driver is not compatible with a multi-processor compatible personal computer, so such a computer cannot be used.

(4) Multi-thread Communications

Multi-thread communications cannot be carried out.

(5) When Microsoft® Windows NT® Workstation Operating System Version 4.0, Microsoft® Windows® 2000 Professional Operating System or Microsoft® Windows® XP Professional is used.

When Windows NT® Workstation 4.0, Windows® 2000 Professional or Microsoft® Windows® XP Professional is used installation and use of utility are allowed only with the Administrator authority.

(6) When Windows® 2000 Professional or Windows® XP Professional is used

When Windows® 2000 Professional or Windows® XP Professional is used, it is possible to use only Microsoft® Visual Basic® 6.0 and Microsoft® Visual C++® 6.0 as the programming languages.

Microsoft® Visual Basic® 5.0 and Microsoft® Visual C++® 5.0 cannot be used.

INTRODUCTION

Thank you for purchasing the Q80BD-J71LP21-25/ Q80BD-J71LP21G/Q80BD-J71LP21GE/Q80BD-J71BR11 MELSECNET/H Interface Board. Please read this manual carefully so that equipment is used to its optimum.

CONTENTS

SAFETY PRECAUTIONS	A-	1
REVISIONS	A-	5
Precautions for Use	A-	6
INTRODUCTION		
CONTENTS	A-	7
Manuals		
How to Use This Manual		
Generic Terms and Abbreviations	A-1	5
Meaning and Contents of the Terms		
Product List	A-1	6
1 OVERVIEW	1- 1 to 1-	4
1.1 Overview	1-	1
1.2 Features	1-	2
1.3 Combinations of Boards with Existing Software	1-	3
2 SYSTEM CONFIGURATION	2- 1 to 2-	6
2.1 MELSECNET/H Board System Configuration	2-	1
2.2 Single Network System	2-	2
2.2.1 Optical loop system	2-	2
2.2.2 Coaxial bus system	2-	2
2.2.3 Setting items	2-	3
2.2.4 Usable device ranges	2-	3
2.3 Multiple Network System	2-	4
2.3.1 Configuration	2-	4
2.3.2 Setting items		
2.3.3 Usable device range		
2.4 If used in a Multiple PLC System		
2.5 Operating Environment	2-	6
3 SPECIFICATIONS	3- 1 to 3-	3
3.1 General Specifications	3-	1
3.2 Performance Specifications		
3.3 Optical Fiber Cable Specification		
3.4 Coaxial Cable Specification	3-	3

4 FUNCTION	4- 1 to 4- 4
4.1 Function List	<i>1</i> ₋ 1
4.2 Specifications of the Link Data Sending/Receiving Processing Time	
4.2.1 Link data sending/receiving processing	
4.2.1 Link data seriality/reserving processing	7 <i>L</i>
5 PROCEDURE AND SETTINGS UP TO THE POINT OF OPERATION	5- 1 to 5-23
5.1 Procedure Up to the Point of Operation	5- 1
5.2 Installation	5- 2
5.2.1 Precautions when handling	5- 2
5.2.2 Installation environment	5- 2
5.3 Names of Each Part and Their Settings	5- 3
5.4 Cable Connection	5- 5
5.4.1 Optical loop system	5- 5
5.4.2 Coaxial bus system	5- 7
5.4.3 Connecting the connector for the coaxial cable	5-12
5.5 Standalone Check of the MELSECNET/H Board (Offline Tests)	5-14
5.5.1 Self-loopback test	5-15
5.5.2 Internal self-loopback test	5-17
5.5.3 H/W test	5-19
5.6 Offline Tests	5-20
5.6.1 Station to station test	5-20
5.6.2 Forward loop/Reverse loop test	5-23
6 PARAMETER SETTINGS	6- 1 to 6-12
6.1 Board Information Settings	6- 2
6.2 Network Settings	
6.2.1 Network No.	
6.2.2 Station No	
6.2.3 Control station/Normal station	
6.2.4 Group No	6- 4
6.2.5 Mode setting	6- 5
6.2.6 Parameter setting example	
6.3 Common Parameters	
6.3.1 Send range for each station (LB/LW settings)	
6.3.2 Send range for each station (LX/LY settings)	
6.3.3 Total station	
6.3.4 Designation of the I/O master station	
6.3.5 Reserved station setting	
6.4 Supplementary Setting	
6.5 Control Station Return Setting	6-12

7 INSTALLING AND UNINSTALLING THE SOFTWARE PACKAGE	7- 1 to 7-13
7.1 Installation	7- 1
7.1.1 Installing the Driver	7- 2
7.1.2 Installing the utility	
7.2 Icons to be Registered	
7.3 Uninstalling the Software Package	
7.4 Copying the Program to Floppy Disks, then Installing It	
8 UTILITY OPERATIONS	8- 1 to 8-37
8.1 Utility Common Operations	8- 1
8.1.1 Starting an utility	
8.1.2 Ending an utility	
8.1.3 Displaying the help screen	
8.1.4 Verifying the version	
8.2 MNETH Utility	
8.2.1 Operating procedure	
8.2.2 Board list screen operation	
8.2.3 Board information screen operation	
8.2.4 Routing Parameter Setting screen operation	
8.2.5 Common parameter setting screen operation	
8.2.6 Loop monitor screen operation	
8.2.7 Each station status screen operation	
8.2.8 Error history monitor screen operation	
8.2.9 Memory, I/O Test screen operation	
8.2.10 Target screen operation	
8.2.11 Driver screen operation	
8.3 Device Monitor Utility	
8.3.1 Operation procedure	
8.3.2 Setting as batch monitoring	
8.3.3 Setting as 16 point entry monitor	
8.3.4 Setting the monitoring destination	
8.3.5 Setting the device to be monitored	
8.3.6 Changing word device values	
8.3.7 Changing word device values continuously	
8.3.8 Tuning on/off a bit device	
8.3.9 Switching the display form	
8.3.10 Numeric value input pad	
8.3.11 Other operations	
8.4 Error Viewer Operation	
8.4.1 Screen description	
8.4.2 Log menu	
8.4.3 Display menu	

9 ACCESSIBLE DEVICES AND RANGES	9- 1 to 9- 5
9.1 Accessible Devices	
9.1.1 Host (personal computer (control/normal station equivalent))	
9.1.2 Other station	
9.2 Accessible Range	9- 5
10 MELSEC DATA LINK LIBRARY	10- 1 to 10- 8
10.1 Overview of the MELSEC Data Link Library	10- 1
10.2 Function List	
10.3 Settings for Using Functions	
10.3.1 When using Visual Basic® 5.0 and Visual Basic® 6.0	
10.3.2 When using Visual C++® 5.0 and Visual C++® 6.0	
10.4 Procedure for Programming	
10.5 Channel	
10.6 Station Number Settings	
10.7 Device Types	
10.8 Sample Programs	10- 8
11 PROGRAMMING	11- 1 to 11- 5
11.1 Cautions in Programming	11- 1
11.1.1 Interlock related signals	11- 1
11.2 Cyclic Transmission	11- 3
11.2.1 Block guarantee of cyclic data per station	11- 4
11.3 Link Special Relays (SB)/Registers (SW)	11- 5
12 APPLICATION FUNCTIONS	12- 1 to 12-21
12.1 Direct Access to the Link Devices	12- 2
12.2 Low-Speed Cyclic Transmission Function	12- 3
12.2.1 Send range settings	12- 4
12.2.2 Send timing	12- 5
12.2.3 Startup	12- 6
12.3 Transient Transmission Function	12- 8
12.3.1 Communication function	12- 9
12.3.2 Routing function	12-12
12.3.3 Group function	
12.4 Multiplex Transmission Function (Optical Loop System)	12-21
13 ERROR CODE	13- 1 to 13- 6

A - 10 A - 10

14 TROUBLESHOOTING	14- 1 to 14-19
14.1 When Performing Troubleshooting	
14.2 Cause Determination Methods by Type of Trouble	
14.3 Flowchart to Use when MELSECNET/H Board did not Operate Normally	
14.3.1 Table of error event messages that may occur during driver startup	
14.4 Flowchart to Use when Data Link is not Achieved	
14.4.1 Flowchart to use when RUN LED is unlit	
14.4.2 Flowchart to use when SD/RD LED does not turn on	14- 9
14.4.3 Flowchart to use when L.ERR. LED turns on	14-10
14.4.4 Flowchart to use when unable to achieve data link for entire system	14-11
14.4.5 Flowchart to use when unable to achieve data link for specific station	14-13
14.5 Flowchart to Use when Error Occurred During Data Link	14-15
14.5.1 Flowchart to use when unexpected value is input to specific link device	14-15
14.5.2 Flowchart to use when data cannot be written or read in user program	14-15
14.5.3 Flowchart to use when communication is disabled from time to time during user pro	ogram
execution	14-16
14.5.4 Flowchart to use when system reset or system hang-up occurred in Operating System	tem 14-17
14.6 Information Needed when Calling with Inquiry	14-19
APPENDIX A _F	p- 1 to App- 6
Appendix 1 Channel No. Assignment Method	App- 1
Appendix 2 Cautions when Using MX Links	
Appendix 2.1 Cautions when accessing a multiple PLC system	
Appendix 3 Using the Manual (PDF Data)	App- 4
Appendix 3.1 Procedure up the point where the manual can be read	• • • • • • • • • • • • • • • • • • • •
Appendix 3.2 Manual operation	
Appendix 4 External Dimensions	• •
Appendix 4.1 Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE	• • •
Appendix 4.2 Q80BD-J71BR11	

A - 11 A - 11

<u>Manuals</u>

The following table lists the manuals relevant to this product.

You can order them as necessary.

Relevant Manuals

Manual Name	Manual Number (Model Code)
Q corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network) This manual explains the system configuration, performance specification, function, handling, wiring and troubleshooting for MELSECNET/H network system. (Option)	SH-080049 (13JF92)
QnA/A4AR corresponding MELSECNET/10 Network System Reference Manual This manual explains the system configuration, performance specification, function, handling, wiring and troubleshooting for MELSECNET/10 network system. (Option)	IB-66690 (13JF78)
Type A70BDE-J71QLP23/A70BDE-J71QLP23GE/A70BDE-J71QBR13/A70BDE-J71QLR23 MELSECNET/10 Interface Board User's Manual (For SW3DNF-MNET10) This manual explains the system configuration, performance specification, function, handling, wiring and troubleshooting for MELSECNET/10 board. (Option)	IB-0800035 (13JL93)

How to Use This Manual

"How to Use This Manual" differs depending on the purpose for which the MELSECNET/H board is used. Use this manual with reference to the following contents.

(1) When desiring an overview or to know the features of the MELSECNET/H board (Chapter 1)

Chapter 1 gives an overview of the MELSECNET/H board and its features.

(2) When desiring to know about the system configuration (Chapter 2)

Chapter 2 gives the system configuration.

(3) When desiring to know the specifications of the MELSECNET/H board (Chapter 3)

Chapter 3 gives the specifications of the MELSECNET/H board.

(4) When desiring to know the functions of the MELSECNET/H board (Chapter 4)

Chapter 4 gives the functions of the MELSECNET/H board.

- (5) When desiring to know the procedure up to the point of operation of the MELSECNET/H board and settings (Chapter 5) Chapter 5 gives the procedures up to the point of operation and the settings.
- (6) When desiring to know the parameter settings for the MELSECNET/H board (Chapter 6)

Chapter 6 gives the parameter settings.

- (7) When desiring to know the procedure for installing and uninstalling the software package (Chapter 7) Chapter 7 gives the procedure for installing and uninstalling the software package.
- (8) When desiring to know the operation of each utility (Chapter 8) Chapter 8 gives the operation methods for each utility.
- (9) When desiring to know the devices which can access the MELSECNET/H board and access ranges (Chapter 9) Chapter 9 gives the devices which can access the MELSECNET/H board and access ranges.
- (10) When desiring to know about the MELSEC Data Link Library (Chapter 10)

Chapter 10 gives details concerning the MELSEC Data Link Library.

- (11) When desiring to know the interlock related signals (Chapter 11) Chapter 11 gives the interlock related signals.
- (12) When desiring to know the application functions (Chapter 12) Chapter 12 gives the MELSECNET/H board's application functions.
- (13) When desiring to know the MELSECNET/H board's error codes (Chapter 13) Chapter 13 gives the error codes.
- (14) When desiring to know about troubleshooting (Chapter 14) Chapter 14 gives information on troubleshooting.
- (15) When desiring to know how to assign channel No. (Appendix)

 The appendix gives channel No. assignment methods for the MELSECNET/H board.

A - 14 A - 14

Generic Terms and Abbreviations

Unless otherwise specified, this manual uses the following generic terms and abbreviations to describe MELSECNET/H interface board.

Generic Term/Abbreviation	Description					
Q80BD-J71LP21-25	Abbreviation for Q80BD-J71LP21-25 MELSECNET/H interface board.					
Q80BD-J71LP21-23	Abbreviation for Q80BD-J71LP21G MELSECNET/H interface board.					
Q80BD-J71LP21GE	Abbreviation for Q80BD-J71LP21GE MELSECNET/H interface board.					
Q80BD-J71BR11	Abbreviation for Q80BD-J71BR11 MELSECNET/H interface board.					
MELSECNET/H board	Generic term for Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE, Q80BD-J71BR11.					
MNETH utility	Abbreviation for MELSECNET/H utility					
Personal computer	IBM PC/AT compatible computer.					
GX Developer	General product name for product model names SWnD5C-GPPW-E, SWnD5C-GPPW-EA, SWnD5C-GPPW-EVA.					
MX Links	General product name for product model names SWnD5F-CSKP-E					
MX Component	General product name for product model names SWnD5C-ACT-E, SWnD5C-ACT-EA					
MELSECNET/10	Abbreviation for A70BDE-J71QLP23/A70BDE-J71QLP23G E/A70BDE-J71QBR13/A70BDE-J71QLR23MELSECNET/10 interface board.					
AnNCPU	Generic term for A0J2HCPU, A1SCPU, A1SCPU-S1, A1SCPUC24-R2, A1SHCPU, A1SJCPU, A1SJCPU-S3, A1SJHCPU, A1NCPU, A2CCPU, A2CCPUC24, A2CCPUC24-PRF, A2CJCPU, A2NCPU, A2NCPU-S1, A2SCPU, A2SCPU-S1, A2SHCPU, A3NCPU, A1FXCPU.					
AnACPU	Generic term for A2ACPU, A2ACPU-S1, A2ACPUP21/R21, A2ACPUP21/R21-S1, A3ACPUP21/R21, A3ACPU.					
AnUCPU	Generic term for A2UCPU, A2UCPU-S1, A2ASCPU, A2ASCPU-S1, A2ASCPU-S30, A2USHCPU-S1, A3UCPU, A4UCPU.					
ACPU	Generic term for AnNCPU, AnACPU, AnUCPU.					
QnACPU	Generic term for Q2ACPU, Q2ACPU-S1, Q2ASCPU, Q2ASCPU-S1, Q2ASHCPU, Q2ASHCPU-S1, Q3ACPU, Q4ACPU, Q4ARCPU.					
QCPU (A mode)	Generic term for Q02CPU-A, Q02HCPU-A and Q06HCPU-A.					
QCPU (Q mode)	Generic term for Q00JCPU, Q00CPU, Q01CPU, Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, Q25HCPU, Q12PHCPU and Q25PHCPU. Note that especially when the CPU is indicated as a different model, Q00JCPU, Q00CPU and Q01CPU are described as Q00J/Q00/Q01CPU, and Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU and Q25HCPU as Q02/Q02H/Q06H/Q12H/Q25HCPU. In addition, Q12PHCPU and Q25PHCPU are described as the Process CPU.					
QJ71LP21	Abbreviation for QJ71LP21, QJ71LP21G, Q71LP21GE, QJ71LP21-25, QJ71LP21S-25, MELSECNET/H network module. However, if shown for a particular model, QJ71LP21, QJ71LP21G, Q71LP21GE, QJ71LP21-25, QJ71LP21S-25 is entered.					
QJ71BR11	Abbreviation for QJ71BR11 MELSECNET/H network module.					
Network module	Generic term for QJ71LP21, QJ71BR11					
MELSECNET/H	Abbreviation for Q corresponding MELSECNET/H network system.					
MELSECNET/10	AnU corresponding, QnA/Q4AR corresponding MELSECNET/10 network system.					
MELSECNET/H (10 Mbps)	Abbreviation in case of using MELSECNET/H board with communication rate of 10 Mbps.					
MELSECNET/H (25 Mbps)	Abbreviation in case of using MELSECNET/H board with communication rate of 25 Mbps.					
MELSECNET/H mode	Abbreviation in case of using MELSECNET/H board and network module with MELSECNET/H.					
MELSECNET/10 mode	Abbreviation in case of using MELSECNET/H board and network module with MELSECNET/10.					

Meaning and Contents of the Terms

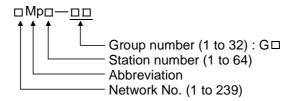
This section describes meaning and contents of the terms in this manual.

(1) Abbreviations for control station and normal station, and symbol format This section explains abbreviations for control station and normal station, and symbol format to be used in this manual.

(a) Abbreviation

Abbreviation	Name					
МР	Control station					
Ns	Normal station (Station that can serve as a control station)					

(b) Symbol format



[Example]

- 1) Network No. 3, control station, staiton nmber 6: 3Mp6
- 2) Network No. 5, normal station, staiton nmber 3: 5Ns3

Product List

	Quantity						
Part name	Q80BD- J71LP21-25	Q80BD- J71LP21G	Q80BD- J71LP21GE	Q80BD- J71BR11			
Type Q80BD-J71LP21-25 MELSECNET/H Interface board	1	-	-	-			
Type Q80BD-J71LP21G MELSECNET/H Interface board	-	1	-	-			
Type Q80BD-J71LP21GE MELSECNET/H Interface board	-	-	1	-			
Type Q80BD-J71BR11 MELSECNET/H Interface board	-	-	-	1			
SW0DNC-MNETH-B MELSECNET/H Software package (CD-ROM)	1	1	1	1			
F-type connector	-	-	-	1			
Software Licence Agreement	1	1	1	1			

A - 16 A - 16

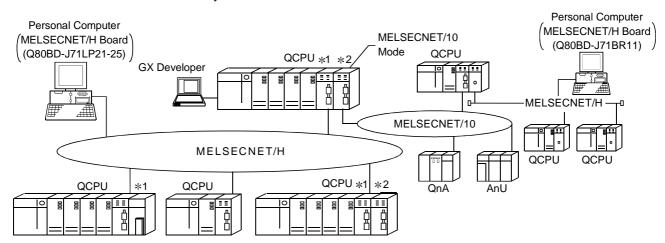
1 OVERVIEW

1.1 Overview

The MELSECNET/H is a network system which is used to connect multiple sequencer modules and personal computers, and is equipped with functions and performance realized in the MELSECNET/10 for general control of a production line. In the MELSECNET/H, there is a network system which includes an optical loop system (communication rates: 10 Mbps, 25 Mbps) and a coaxial bus system (communications rate: 10 Mbps), enabling large volume communications at high speeds.

Also, in order to improve the performance of the MELSECNET/10 network and achieve upward compatibility, MELSECNET/H supports the MELSECNET/H mode (high performance, high speed mode) and the MELSECNET/10 Mode (function compatible and performance compatible mode).

Furthermore, this manual is for the use of the MELSECNET/H board in the MELSECNET/H mode, so if you are using the MELSECNET/H board in the MELSECNET/10 mode, please refer to the "QnA/Q4AR Compatible MELSECNET/10 Network System Reference Manual".



- *1: The multiple PLC system compatible network module is for function version B and subsequent products.
- *2: In the multiple PLC system, a network module that becomes a relay station is the same as the control PLC.

POINT

- (1) When selecting the MELSECNET/H PLC, please select the QCPU (Q Mode) and Q compatible network modules.
- (2) If the QnACPU or ACPU are included in the same network, select the MELSECNET/10 mode which is compatible with the MELSECNET/10.
- (3) A MELSECNET/H mode network module and MELECNET/H board cannot be mixed with a MELSECNET/10 mode network module and MELSECNET/H board in the same network.

1.2 Features

The features of the MELSECNET/H board are as shown below.

(1) A personal computer can be incorporated into MELSECNET/H.

By mounting the MELSECNET/H board in a personal computer, the personal computer can be used as a MELSECNET/H or MELSECNET/10 control station or normal station.

Deard madel mane	Supported network					
Board model name	Mode					
Q80BD-J71LP21-25	MELSECNET/H Mode	MELSECNET/H (10 Mbps / 25 Mbps) Optical Loop System				
Q00BD-J7 ILP21-25	MELSECNET/10 Mode	MELSECNET/10 Optical Loop System				
000DD 174DD44	MELSECNET/H Mode	MELSECNET/H (10 Mbps) Coaxial Bus System				
Q80BD-J71BR11	MELSECNET/10 Mode	MELSECNET/10 Coaxial Bus System				
Q80BD-J71LP21G	MELSECNET/H Mode	MELSECNET/H (10 Mbps) Optical Loop System				
Q80BD-J71LP21GE	MELSECNET/10 Mode	MELSECNET/10 Optical Loop System				

(2) Through the use of the PCI bus, it is not necessary to carry out troublesome switch settings.

The system can be used simply by installing the MELSECNET/H board in the personal computer, then installing the software.

The channel No., station NO. and other settings can be carried out easily in the MNETH Utility.

- (3) Compatibility with the previous MELSECNET/10 board's operations is maintained.
 - (a) Upward compatibility of user applications The MELSECNET/H board is the same as the previous MELSECNET/10 board when it comes to the maximum number of boards that can be installed in a personal computer (No. of MELSECNET/10 boards and MELSECNET/H boards combined) and the channel No., etc. so you can continue to use your existing MELSECNET/10 boards.
 - (b) Compatible with the GX Developer, MX Links and MX Component. It is possible to access the PLC CPU using the GX Developer, MX Links and MX Component from a personal computer where the MELSECNET/H board is installed.
- (4) Compatible with QCPU (Q Mode) multiple PLC systems.

 By using logical station No. station designations in the MNETH utility, it is possible to communicate with each CPU (Q Mode) in a multiple PLC system.
- (5) Drivers are provided for compatibility with each OS.

Each type of driver is provided, so it is easy to build a system that is compatible with the user environment.

Compatible OS:

Microsoft® Windows® 95 Operating System (English Version)

Microsoft® Windows® 98 Operating System (English Version)

Microsoft® Windows NT® Workstation Operating System Version 4.0 (English Version)

Microsoft® Windows® 2000 Professional Operating System (English Version)

Microsoft® Windows® XP Professional Operating System (English Version)

(6) User programming functions are provided.

Through Microsoft® Visual Basic® and Microsoft® Visual C++® compatible functions, it is possible to carry out remote control of a PLC CPU or read and write to devices, and user applications can be created easily.

1 OVERVIEW

1.3 Combinations of Boards with Existing Software

This section describes the combinations of boards with existing software.

(1) When using the MELSECNET/H board and other interface boards in the same PC

	2 %	Supported OS								
Board model name	Software package name	DOS	NT	Win	Win	Win	NT	Win	XP	XP
		003	3.51	95	98	Me	4.0	2000	Pro	Home
	SW0IVDWT-MNET10P	0	0	×	×	×	×	×	×	×
A70BDE-J71QLP23	SW1IVDWT-MNET10P	ō	ō	0	×	×	0 * 1	×	×	×
A70BDE-J71QLP23GE A70BDE-J71QBR13	SW2DNF-MNET10	0	×	0	0	×	0	×	×	×
A70BDE-J71QBK13	SW3DNF-MNET10	0	×	0	0	×	0	×	×	×
A70BDE-J71QLR23	SW3DNF-MNET10	0	×	0	0	×	0	×	×	×
	SW0DNF-CCLINK	×	×	×	×	×	0 * 2	×	×	×
	SW1DNF-CCLINK	×	×	0	×	×	0 * 2	×	×	×
A80BDE-J61BT13	SW2DNF-CCLINK	×	×	0	0	×	0	×	×	×
	SW3DNF-CCLINK	×	×	0	0	×	0	×	×	×
	SW4DNF-CCLINK-B	×	×	0	0	×	0	0	O * 3	×
A80BDE-J61BT11	SW3DNF-CCLINK	×	×	0	0	×	0	×	×	×
	SW4DNF- CCLINK-B	×	×	0	0	×	0	0	O * 3	×
A80BDE-A2USH-S1	SW0DNF-ANU-B	×	×	0	0	×	0	×	×	×
	SW1DNF-ANU-B	×	×	0	0	×	0	0	×	×

 DOS : MS-DOS 6.2
 NT 3.51 : Windows NT® Workstation 3.51
 Win 95 : Windows® 95
 Win 98 : Windows® 98

 Win Me : Windows® Me
 NT 4.0 : Windows NT® Workstation 4.0
 Win 2000 : Windows® 2000 Professional

XP Pro: Windows ® XP Professional O: Can be operated simultaneously.

XP Home : Windows $^{\tiny\textcircled{\tiny \$}}$ XP Home Edition

Cannot be operated simultaneously.

— : No combination available

indicates an OS that is not supported by the MELSECNET/H board. It cannot be used on the same PC.

- *1 : The user program EXE file that was generated using MDFUNC32.LIB must be re-linked using the MDFUNC32.LIB that comes with SW0DNC-MNETH-B.
- *2: Update the version of each software if it is used with the MELSECNET/H board on the same PC.

 For details on version update products, contact your local Mitsubishi service center or representative.
- *3 : Supports Windows® XP Professional from Version 40E or later.

(2) When using the MELSECNET/H board, Communication Support Software Tool and GX Developer in the same PC

		Supported OS								
Software name	Software package name	DOS	NT 3.51	Win 95	Win 98	Win Me	NT 4.0	Win 2000	XP Pro	XP Home
	SW1D5F-CSKP-E	×	×	△ * 1	△*1	×	∆ * 1	×	×	×
	SW1D5F-CSKP-E	×	×	△ * ¹	∆ * ¹	×	△ * ¹	×	×	×
	SW1D5F-OLEX-E	×	×	△ * ¹	∆ * ¹	×	△ * ¹	×	×	×
	SW1D5F-XMOP-E	×	×	∆ * ¹	∆ * ¹	×	△ * ¹	X	×	×
Communication Support	SW3D5F-CSKP-E	×	×	0	0	×	0	×	×	×
Software Tool * 2	SW3D5F-OLEX-E	×	×	0	0	×	0	×	×	×
	SW3D5F-XMOP-E	×	×	0	0	×	0	×	×	×
	SW0D5C-ACT-E	×	×	Δ	Δ	×	Δ	×	×	×
	SW2D5C-ACT-E	×	×	0	0	0	0	0	×	×
	SW3D5C-ACT-E	×	×	0	0	0	0	0	0	0
	SW1D5C-SHEET-E	×	×	×	0	0	0	0	0	0
	SW1D5F-GPPW-E/ SW1D5C-GPPW-E	×	×	Δ	△ * 3	×	Δ	×	×	×
GX Developer	SW3D5F-GPPW-E/	×	×	Δ	Δ	×	Δ	×	×	×
	SW3D5C-GPPW-E SW4D5C-GPPW-E	×	×		0	×		×	×	×
	SW4D5C-GPPW-E	×	×	Δ		×	Δ	×	×	×
	SW6D5C-GPPW-E	×	×	0	0	×	0	×	×	×
	SW7D5C-GPPW-E	×	×	0	0	Ô	0	Ô	×	×

DOS : MS-DOS 6.1 NT 3.51 : Windows NT® Workstation 3.51 Win 95 : Windows® 95 Win 98 : Windows® 98

NT 4.0 : Windows NT® Workstation 4.0 Win 2000 : Windows® 2000 Professional XP Pro: Windows® XP Professional XP Home : Windows® XP Home Edition

 $\hbox{$\bigcirc$: Can be operated simultaneously.} \hbox{\times: Cannot be operated simultaneously.} \hbox{$-:$ No combination available}$

 \triangle : Cannot access the MELSECNET/H board, and cannot access other stations via the MELSECNET/H board.

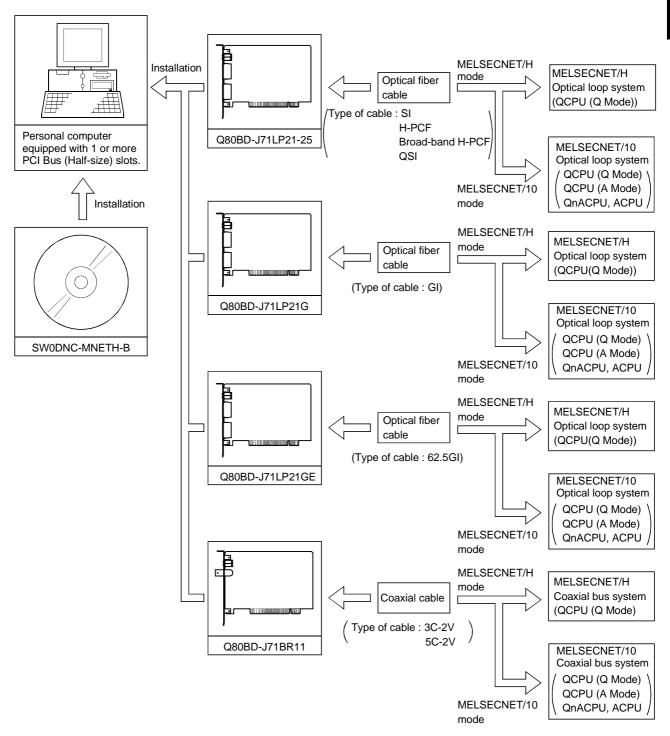
indicates an OS that is not supported by the MELSECNET/H board. It cannot be used on the same PC.

- *1 : Update the version of each software if it is used with the MELSECNET/H board on the same PC. For details on version update products, contact your nearest Mitsubishi dealer.
- *2: There may be some restrictions on the use of the MELSECNET/H board in each package. For more details, see Appendix 2, "Precautions for Using MX Links."
- *3 : Supports Windows® 98 from Version 30D or later.

2 SYSTEM CONFIGURATION

2.1 MELSECNET/H Board System Configuration

The system configuration when the MELSECNET/H board is mounted to a personal computer is shown below.



2 - 1 2 - 1

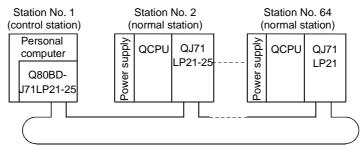
2.2 Single Network System

A single network system is one system that connects the control station and the normal stations with an optical fiber cable or a coaxial cable.

2.2.1 Optical loop system

In the optical loop system, 1 control station and 63 normal stations (a total of 64 stations) can be connected. Any station number can be assigned as the control station. However, only one station can be set as the control station per system.

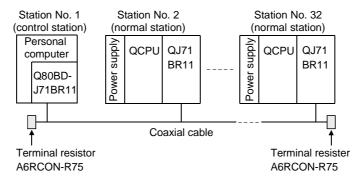
In the following sample system, station number 1 has been assigned as the control station.



Optical fiber cable

2.2.2 Coaxial bus system

In the coaxial bus system, 1 control station and 31 normal stations (a total of 32 stations) can be connected. As in the optical loop system, any station number can be assigned as the control station. However, only 1 station can be assigned as the control station per system.



2.2.3 Setting items

In a single network system, the items which need to be set in the case that the MELSECNET/H board is used as the control station or normal station are as follows. MELSECNET/H board settings are set by the MNETH Utility.

	· ·	•	•	
Setting item		Control station	Normal station	Reference section
Channel setting		Δ	Δ	Section 8.2.2
Network No) .	0	0	
Group No.		Δ	Δ	
Station No.		0	0	Section 8.2.3
Control stat	ion/ Normal station	0	0	
Mode Settin	ng	0	0	
Routing par	ameter setting	×	×	Section 8.2.4
	B, W setting	0	×	
Common	X, Y setting	0	×	0
parameter setting	parameter Reserved station setting		×	Section 8.2.5
Supplementary setting		Δ	×	
Opposite party setting (Logical station No.)		Δ	Δ	Section 8.2.10
Driver settir	ng	Δ	Δ	Section 8.2.11

O: Setting necessary A: Set as necessary X: Setting unnecessary

2.2.4 Usable device ranges

The MELSECNET/H board ca be used within the following device ranges for the following devices on the MELSECNET/H board.

Device	Usable range	
LB	0н to 3FFFн (16384 points)	The function expansion area at 2000H to 3FFFH can be used in the low speed cyclic transfer function.
LW	0н to 3FFFн (16384 points)	The use ranges for each MELSECNET/H board and network module need to be assigned in the parameter settings for the control station.
LX	0н to 1FFFн (8192 points)	The use ranges for each MELSECNET/H board and network
LY	0н to 1FFFн (8192 points)	module need to be assigned in the parameter settings for the control station.

If the MELSECNET/H board is used in the MELSECNET/10 mode, the device range for LB/LW becomes 0H to 1FFFH (8192 points).

2.3 Multiple Network System

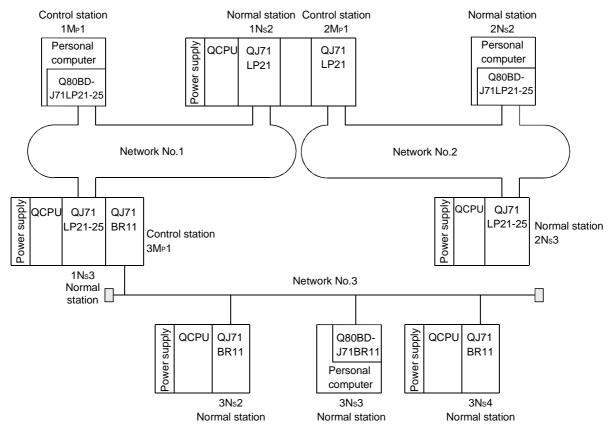
A multiple network system is a system where multiple networks are connected by relay stations.

POINT

- (1) The network No. can be set at any desired No. in the range 1 to 239.
- (2) The MELSECNET/H board cannot be used as a relay station. Please use the network module as a relay station.

2.3.1 Configuration

The following example shows how three networks can be connected.



2.3.2 Setting items

Setting items in the case that the MELSECNET/H board is used as a control station or normal station in a multiple network system are explained below.

MELSECNET/H board settings are performed by the MNETH Utility.

Setting item		Control station	Normal station	Reference section
Channel setting		Δ	Δ	Section 8.2.2
Network No		0	0	
Group No.		Δ	Δ	
Station No.		0	0	Section 8.2.3
Control stati	on/ Normal station	0	0	
Mode setting	Mode setting		0	
Routing para	ameter setting	Δ	Δ	Section 8.2.4
	B, W setting	0	×	
Common	X, Y setting	0	×	Section 8.2.5
Setting	Parameter Reserved station setting		×	Section 8.2.5
Supplementary setting		Δ	×	
Opposite party setting (Logical station No.)		Δ	Δ	Section 8.2.10
Driver settin	g	Δ	Δ	Section 8.2.11

2.3.3 Usable device range

The same device range as is used for a single network system (section 2.2.3) can be

2.4 If used in a Multiple PLC System

For cautions in the case of installing MELSECNET/H in a multiple PLC system, see "Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network)."

2.5 Operating Environment

The following table shows the c	perating environmen	it for the MELSECNET/H board.
The remember of the control time of	, p = 1 a til 1 g = 1 til 1 a til 1 til	

	Item	Description				
Personal CPU computer Required memory		IBM-PC/AT-compatible personal computer with one or more PCI bus slots, satisfying the specifications described below in "Applicable operating system and the corresponding required PC performance" * 1.				
	PCI bus specifications	5V DC, 32-bit bus, Basic clock: 33MHz				
Operating system		Microsoft® Windows® 95 Operating System (English version) Microsoft® Windows® 98 Operating System (English version) Microsoft® Windows NT® Workstation Operating System Version 4.0 (English version) *2				
		Microsoft® Windows® 2000 Professional Operating System (English version) Microsoft® Windows® XP Professional Operating System (English version) *3				
Display		Resolution: 800 \times 600 dot or higher (Recommended: 1024 \times 768 dot) *4				
Available h	ard disk space	20MB or more				
Disk drive		CD-ROM disk drive				
Programming language * ^{5,} * ^{6,} * ⁷		Microsoft [®] Visual Basic [®] 5.0 (English version), Microsoft [®] Visual Basic [®] 6.0 (English version), Microsoft [®] Visual C++ [®] 5.0 (English version), Microsoft [®] Visual C++ [®] 6.0 (English version)				

- *1: This product does not work with a multiprocessor IBM-PC/AT-compatible personal computer, as the driver is incompatible.
- *2: Service Pack3 or higher is required when using Windows NT® Workstation 4.0.
- *3: Utilities do not work in XP compatibility mode.
- *4: This product does not comply with large-sized fonts when Windows® 2000 Professional or Windows® XP Professional is used.
- *5: User programs created in the English environment work only in the English environment.
- *6: Use Visual Basic[®] 6.0 or Visual C++[®] 6.0 when using Windows[®] 2000 Professional or Windows[®] XP Professional. (Visual Basic[®] 5.0 and Visual C++[®] 5.0 cannot be used.)
- *7: This product is not compatible with Microsoft® Visual Basic® .NET or Microsoft® Visual C++® .NET.

Applicable operating system and the corresponding required PC performance

0	Description					
Operating system	CPU	Required memory				
Windows [®] 95	Pentium® 133MHz or higher	32MB or more				
Windows® 98	Pentium® 133MHz or higher	32MB or more				
Windows NT® Workstation 4.0	Pentium® 133MHz or higher	32MB or more				
Windows® 2000 Professional	Pentium® 133MHz or higher	64MB or more				
Windows® XP Professional	Pentium® 300MHz or higher	128MB or more				

3 SPECIFICATIONS

This section explains the MELSECNET/H board general specifications, performance specifications.

3.1 General Specifications

(1) This section explains the MELSECNET/H board general specifications.

Item		Specifications						
Operating ambient temperature		0 to 55 °C						
Storage ambient temperature		-25 to 75 °C						
Operating ambient humidity			5 to 95 % RH, N	lo condensation				
Storage ambient humidity		5 to 95 % RH, No condensation						
			Frequency	Acceleration	Amplitude	Sweep Count		
	Conforming to JIS B	When there is	10 to 57 Hz	_	0.075 mm			
Vibration		intermittent vibration	57 to 150 Hz	9.8 m/s ²	-	10 times each in X, Y		
resistance	3502, IEC 61132-2	When there is	10 to 57 Hz	_	0.035 mm	and Z axis		
	continu	continuous vibration	57 to 150 Hz	4.9 m/s ²	_	(80 minutes)		
Shock resistance	Confo	orming to JIS B 35	502, IEC 61131-2	? (147 m/s ² , 3 tim	es each in 3 dire	ections)		
Operating environment		No corrosive gas present						
Operating height		2000 m(6562 ft) or less						
Installation area		On the control board						
Over-voltage category * 1	II or less							
Pollution rate * 2			2 or	less				

- *1: This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within the premises.

 Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300 V is 2500 V.
- *2: This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used. Pollution level 2 is when only non-conductive pollution occurs. A temporary conductivity caused by condensation must be expected occasionally.
 - (2) The general specification after installing the MELSECNET/H board conforms to the PC module.

3.2 Performance Specifications

MELSECNET/H Board performance specifications are shown below.

(1) Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE

		Specifications							
		Q80BD-J7	71LP21-25	Q80BD-J71LP21G	Q80BD-J71LP21GE				
Ite	em	MELSECNET/H (10 Mbps)	MELSECNET/H (25 Mbps)	NET/H (25 Mbps) MELSECNET/H (10 MELS					
		optical loop system	optical loop system	Mbps) optical loop system	Mbps) optical loop system				
Maximum LX/LY			8192 Points						
links in 1	LB	1638	4 Points (When in the MELS	ECNET/10 Mode: 8192 Pc	pints)				
network	LW	1638	4 Points (When in the MELS	ECNET/10 Mode: 8192 Po	pints)				
Maximum links	s in 1 station		((LY + LB) / 8 + (2 ×	LW)) ≦ 2000 bytes					
Communicatio	ns rate * 1	10 Mbps	25 Mbps	10 N	Mbps				
Number of sta	tions								
Connected to			64 Stations (Control statio	n: 1; Normal station: 63)					
Connection ca	ble		Optical fib	er cable					
Total extension	n cable length		30km (98						
		SI optical cable	SI optical cable	,					
		:500m (1640.5 ft.) * 2	:200m (656.2 ft.) * 2						
		H-PCF optical cable	H-PCF optical cable						
Rotwoon static	one longth	:1km (3281 ft.)	:400m (1312.4 ft.)	GI optical cable	62.5 GI optical cable				
Between station	ons length	Broad-band H-PCF optical	Broad-band H-PCF optical	:2km (6562 ft.)	:2km (6562 ft.)				
		cable :1km (3281 ft.)	cable :1km (3281 ft.)						
		QSI optical cable	QSI optical cable						
		:1km (3281 ft.)	:1km (3281 ft.)						
Maximum netv	vorks		239	9					
Maximum num	nber of groups		32 (When in the MELS	ECNET/10 Mode: 9)					
Transmission of	channel format		Duplex	loop					
Communicatio	ns system		Token ring	system					
Synchronization	on system		Frame synchron	ization system					
Encoding syste	em		NRZI encoding (Non re	turn to Zero inverted)					
Transfer forma	at		HDLC Standard						
Error control sy	ystem		CRC (X ¹⁶ + X ¹² + X ⁵ + 1)	and retry by overtime.					
		Loop back function (optical loop system only) by abnormal detection and cable disconnection.							
RAS function		System down prevention through control station.							
		Error detection by the special relay and special register.							
		etc.							
Transient trans			N:N commu						
Special cyclic		·							
Number of boa	ards that can		Maximum 4	boards * 4					
be installed									
Installation slo			PCI bus slot	(Half size)					
Exclusive slots			1 sl	ot					
5 V DC Interna	al current	0.4	6 A	0.4	15 A				
consumption				0.4					
Weight		0.10) kg	0.1	1 kg				

^{*1:} MELSECNET/H board communications rate settings are performed using the MNETH Utility. For details, see Section 8.2.3, "Board information screen operation."

^{*2:} L type and H type of the previous optical fiber cable (A-2-□) differ in the distances between stations. For details, see Section 5.4.1, "Optical fiber cable."

^{*3:} The number of boards that can be installed is the combined number of MELSECNET/H boards and MELSECNET/10 boards.

(2) Q80BD-J71BR11

Item		Specifications				
Ite	em	Q80BD-J71BR11 MELSECNET/H (10 Mbps) coax	ial bus system			
Maximum	LX/LY	8192 Points				
links in 1	LB	16384 Points (When in the MELSECNET/10 Mode	: 8192 Points)			
network	LW	16384 Points (When in the MELSECNET/10 Mode	: 8192 Points)			
Maximum links	s in 1 station	$((LY + LB) / 8 + (2 \times LW)) \le 2000 \text{ byte}$	es			
Communication	ns rate * 1	10 Mbps				
Number of sta Connected to		32 Stations (Control station: 1; normal station	on: 31)			
Connection ca	ble	Optical fiber cable	Coaxial cable			
Total extension cable length in 1 network		Cable name Total extension cable length Length between stations 3C-2V 300 m (Between stations: 300 m)*2 5C-2V 500 m (Between stations: 500 m)*2 Can be extended to 2.5 km (8202.5 ft.) using a repeater unit	(A68R10 A6RR10-DC)			
Maximum netv	vorks	239	(70B)(10,70B)(10 BO).			
Maximum num		32 (When in the MELSECNET/10 Mode: 9)				
Transmission	channel format	Single Bus				
Communication	ns system	Token bus system				
Synchronization	on system	Frame synchronization system				
Encoding system	em	NRZI encoding (Non return to Zero inverted)	Manchester encoding			
Transfer forma	at	HDLC Standard (Frame format)				
Error control s	ystem	CRC ($X^{16} + X^{12} + X^5 + 1$) and retry by overtime.				
RAS function		 Loop back function (optical loop system only) by abnormal detection and cable disconnection. System down prevention through control station. Error detection by the special relay and special register. etc. 				
Transient trans	smission	N:N communications				
Special cyclic	transmission	Low speed cyclic transmission				
Number of boa	ards that can	Maximum 4 boards * 4				
be installed		MANITATI 7 DOUIGO				
Installation slot		PCI bus slot (Half size)				
Exclusive slots	3	1 slot				
5 V DC Interna	al current	0.67 A				
consumption		5-5-7-				
Weight 0.11 kg						

- *1: MELSECNET/H board communications rate settings are performed using the MNETH Utility. For details, see Section 8.2.3, "Board information screen operation."
- *2: Depending on the number of stations connected, there are limits to the cable length between stations. For details, see section 5.4.2,"Coaxial bus system".
- *3: The number of boards that can be installed is the combined number of MELSECNET/H boards and MELSECNET/10 boards.

3.3 Optical Fiber Cable Specification

For the optical fiber cable specification, see "Q corresponding MELSECNET/H network system reference manual (PLC to PLC network)."

3.4 Coaxial Cable Specification

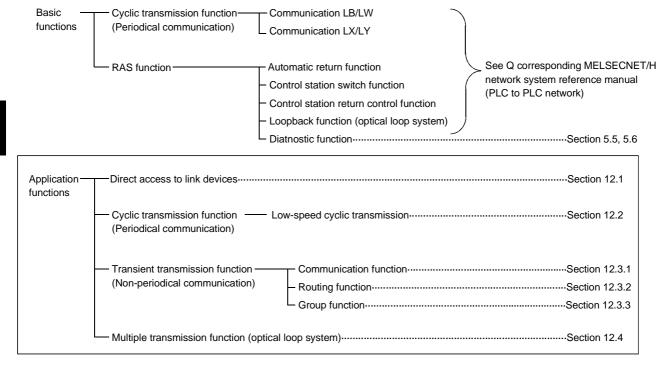
For the coaxial cable specification, see "Q corresponding MELSECNET/H network system reference manual (PLC to PLC network)."

4 FUNCTION

This chapter explains the function of MELSECNET/H board.

4.1 Function List

The following flowchart shows the function list for MELSECNET/H board.



4

4.2 Specifications of the Link Data Sending/Receiving Processing Time

This section explains the link data sending/receiving processing in the MELSECNET/H network system with MELSECNET/H board.

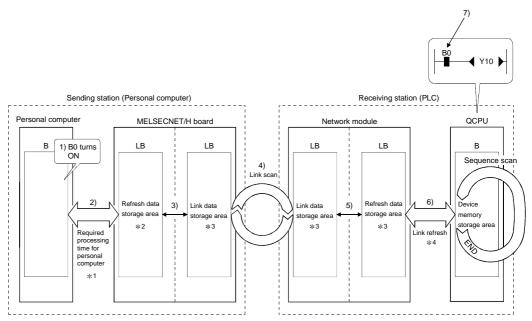
4.2.1 Link data sending/receiving processing

(1) Link data sending/receiving processing

In the cyclic transmission, communication is performed using the LB/LW/LX/LY devices of the network module and MELSECNET/H board.

This section explains the case when the link relay (B) is used on the personal computer side.

- 1) B0 on the sending station (personal computer) turns on.
- By a request from personal computer to MELSECNET/H board, the B0 information is stored in the refresh data storage area (LB) of the MELSECNET/H board.
- 3) The B0 information in the refresh data storage area (LB) is stored in the link data storage area (LB).
- 4) By a link scan, the B0 information in the link data storage area (LB) is stored in the link data storage area (LB) of the network module on the receiving station.
- 5) The B0 information in the link data storage area (LB) is stored in the refresh data storage area (LB).
- 6) By a link refresh, the B0 information is stored in the device memory storage area (B) of the CPU module.
- 7) B0 on the receiving station turns on.

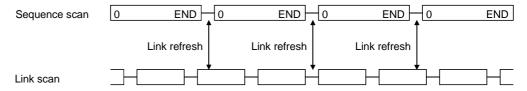


- *1: The processing time differs depending on the personal computer's performance.
- *2: Set by the GX Developer's "Station Inherent Parameters." (If not set, they are stored in the common parameters state.)
- *3: If the MELSECNET/H board is a control station, it is set in the "Common Parameter Setting" screen in the MNETH Utility. If the network module is a control station, it is set in the GX Developer's "Common Parameters."
- *4: Set in the GX Developer's "Network Refresh Parameters."

(2) Link scan and link refresh

The link scan is executed "asynchronous" with the sequence scan of the CPU module.

The link refresh is executed by the "END processing" of the CPU module.



(3) Link data when a communication error station or communication stop station occurs on the network

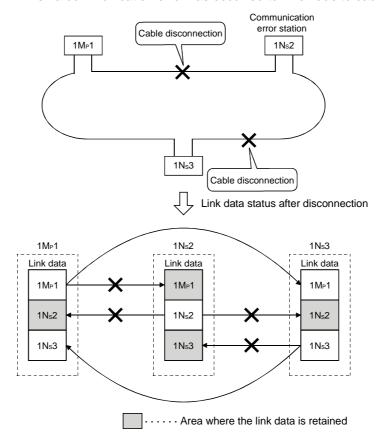
When a communication error or communication stop station occur on the network during the data link, the receive data from those stations immediately before the error occurrence is retained.

(A "communication stop station" refers to a station whose cyclic transmission has been stopped by a peripheral device.)

- (a) The receive data from a communication error station or communication stop station is retained by a normally communicating station.
- (b) The receive data from other station is retained by a communication stop station.

(Example)

When a communication error has occurred to 1Ns2 due to cable disconnection



(4) SB/SW when a communication error station/communication stop station occurs on the network

The status of whether there are any communication error/communication stop stations on the network can be checked with the link special relay/register (SB/SW).

Use them as interlocks for programs.

Link special relays and registers

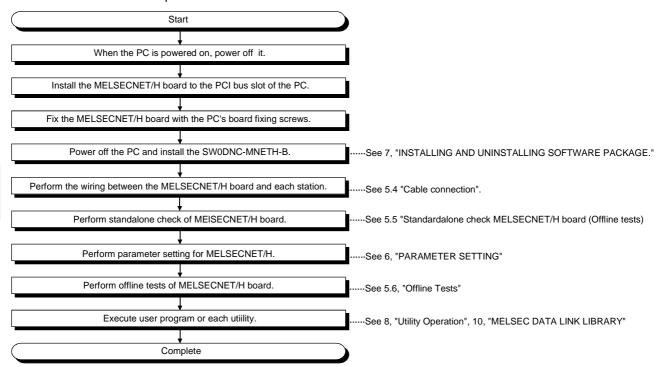
Link special	5	Signal	status
relay/register	Description	Off	On
SB47	Shows the baton pass execution status of the host.	The baton pass is being executed	The baton pass is stopped
SB49	Shows the cyclic transmission status of the host.	Normal	Abnormal
SB70	Shows the baton pass execution status of all stations (including the host). However, it only shows the status for the number of stations set with parameters.	The baton pass is being executed on all stations	Occurrence of communicati- on stop station
SW70 to 73	Shows the baton pass execution status of each station. Each bit corresponds to the status of each station.	The baton pass is being executed	The baton pass is stopped
SB74	Shows the cyclic transmission status of all stations (including the host). However, it only shows the status for the number of stations set with parameters.	All stations normal	Occurrence of abnormal station
SW74 to 77	Shows the cyclic transmission status of each station. Each bit corresponds to the status of each station.	Normal	Abnormal
SB7A, 7B	Shows the low-speed cyclic transmission status. The transmission completion is indicated by the on/off status of either bit SB7A or 7B.	SB7B SB7B Low-speed c	yclic interval

5 PROCEDURE AND SETTINGS UP TO THE POINT OF OPERATION

This section explains the operating procedure up to the point the MELSECNET/H board is operated.

5.1 Procedure Up to the Point of Operation

An outline of the procedure up to the point of MELSECNET/H board operation is explained below.



REMARK

It is necessary to perform settings on the control station side in order to use the MELSECNET/H board as a normal station. Set the control station side as required. See manuals listed below for the setting on the control station side.

- Q corresponding MELSECNET/H network system reference manual (PLC to PLC network)
- QnA/Q4AR Corresponding MELSECNET/10 network system reference manual

5 - 1 5 - 1

5.2 Installation

This section explains precautions when handling the MELSECNET/H board and the installation environment.

5.2.1 Precautions when handling

The following are precautions to be noted when handling the MELSECNET/H board.

!>DANGER

While energizing, do not touch the connector.
 Doing so may result in electric shock or cause malfunctioning.

CAUTION

- Fasten the MELSECNET/H board securely using the installation screws and tighten
 the installation screws securely within the specified torque range.
 If the screws are loose, this may cause malfunctioning.
 If the screws are tightened too much, this could cause damage to the screws or
- unit, leading to malfunctioning.
 Do not directly touch the conductive section of the MELSECNET/H board.
- Doing so could result in malfunctioning or breakdown of the MELSECNET/H board.
 Handle the MELSECNET/H board in a location where there is no static electricity.
 Static electricity could result in failure or malfunctioning.
- The MELSECNET/H board is packed in a bag for preventing static electricity.
 Always place the MELSECNET/H board in this bag when storing or transporting.
 Otherwise, failure or malfunctioning may result.
- Take care that foreign objects such as chips or wiring debris do not get into the PC. This could result in fire, breakdowns or malfunctioning.
- Do not dismantle or rebuild the MELSECNET/H board. This will result in failure, malfunctioning, injury or fire.
- Always turn off all external power before installing or removing the MELSECNET/H board.

If power is not turned off, there is a risk of electric shock or damage to the product.

- When disposing of the product, handle it as an industrial waste.
- Do not drop the MELSECNET/H board or subject it to strong impact.
 This will result in failure or malfunctioning of the board.

5.2.2 Installation environment

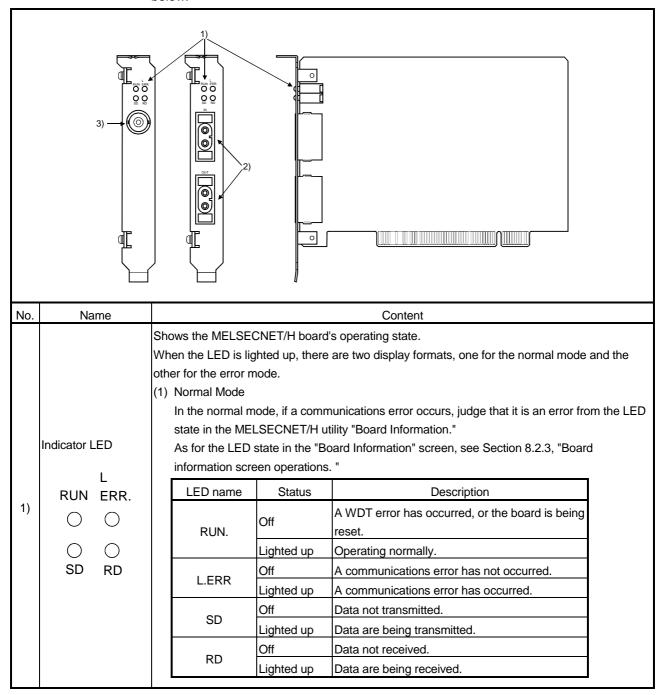
See the instruction manual accompanying the PC module regarding installation of the PC module in which the MELSECNET/H board is mounted.



Always ground the PC module using grounding type D (Class 3 grounding).
 Otherwise, there is the risk of malfunctioning.

5.3 Names of Each Part and Their Settings

The names of each part of the MELSECNET/H board and their settings are explained below.



No.	Name	Content				
	(2) Error mode When the RUN LED is blinking, the LED display format is the error mode. In the error mode, is an error occurs, confirm the content of the error using the error or the event viewer. For details, see Section 8.4, "Error Viewer Operation."			occurs, confirm the content of the error using the error viewer		
	Indicator LED					
1)	L	LED name	Status	Description		
	RUN ERR.	RUN.	Blinking Off Lighted up	Shows that it is in the error mode. No error		
	0 0	L.ERR	Off Lighted up	An OS starting error has occurred. An OS starting error has not occurred.		
	SD RD		Off	A driver compatibility error has occurred.		
		SD	Lighted up	A driver compatibility error has not occurred.		
		DD.	Off	A PCI bus error has occurred.		
		RD	Lighted up	A PCI bus error has not occurred.		
2)	Connector for connecting optical fiber cable	Connector for connecting optical fiber cable. (1) The cable terminal is as shown below. IN Reverse loop transmission IN Forward loop reception Optical fiber cable connection connector OUT Forward loop transmission OUT Reverse loop reception (2) See Section 5.4, "Cable Connections." for wiring of the optical fiber cable.				
3)	Connector for connecting coaxial cable. (1) The cable terminal is as shown below. Connector for connecting coaxial cable LED Coaxial cable connection connector (2) See Section 5.4, "Cable Connections." for wiring of the coaxial cable.					

5.4 Cable Connection

This section explains precautions when connecting cables to MELSECNET/H board.

REMARK

See "Q corresponding MELSECNET/H reference manual (PLC to PLC network) for details of each cables.

5.4.1 Optical loop system

The precautions for connecting the optical fiber cable with Q80BD-J71LP21-25, Q80BD-J71LP21G and Q80BD-J71LP21GE in an optical loop system are given below.

(1) Precautions for connecting

(a) The types of optical fiber cables that can be used vary depending on the distance between stations.

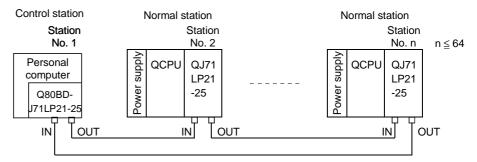
		Distance between stations (m)				
Type		Q80BD-J71LP21-25		Q80BD-J71LP21G	Q80BD-J71LP21GE	
		10Mbps	25Mbps	10Mbps (fixed)	10Mbps (fixed)	
SI type optical fiber cable	L type	500 (1640.5 ft.)	200 (656.2 ft.)			
(Old type: A-2P-□)	H type	300 (984.3 ft.)	100 (328.1 ft.)			
SI optical fiber cable		500 (1640.5 ft.)	200 (656.2 ft.)			
H-PCF optical fiber cable		1000 (3281 ft.)	400 (1312.4 ft.)	Not allowed	Not allowed	
Broad-band H-PCF optical fiber		1000 (3281 ft.)	1000 (3281 ft.)		Not allowed	
cable						
QSI optical fiber cable		1000 (3281 ft.)	1000 (3281 ft.)			
GI optical fiber cable 62.5 GI optical fiber cable		Not allowed	Not allowed	2000 (6562 ft.)		
				Not allowed	2000 (6562 ft.)	

- (b) When connecting an optical fiber cable to Q80BD-J71LP21-25, Q80BD-J71LP21G and Q80BD-J71LP21GE the restrictions on the bending radius should be observed.
 - For bending radius details, check with the cable to use.
- (c) Maintain the bending radius of the optical fiber cable within the allowable range using a tool for securing the optical fiber cable bending radius.
 This tool may be purchased from Mitsubishi Electric System Service, Inc, or your nearest dealer. Please inquire for more information.
- (d) When laying the optical-fiber cables, do not touch the fiber cores of the cable and module connectors, and do not let dust or particles collect on them.If oil from hands, dust or particles adhere to the cores, the accumulated transmission loss may cause malfunctions in the data link.
- (e) When attaching or detaching the optical fiber cable to/from the module, pull or insert the cable by holding the cable connector securely with your hand.
- (f) Connect the cable and module connectors securely until you hear a "click" sound.

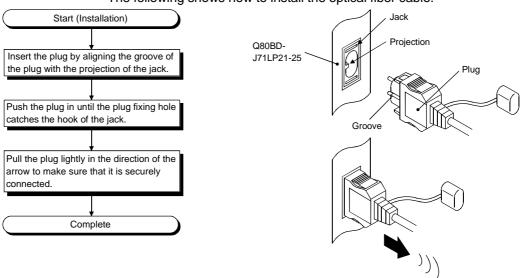
(2) Cable connection

(a) How to connect the cable

Connect the IN and OUT terminals with optical fiber cables as shown below. Stations do not have to be connected in the order of station numbers. Any station number can be assigned as the control station.

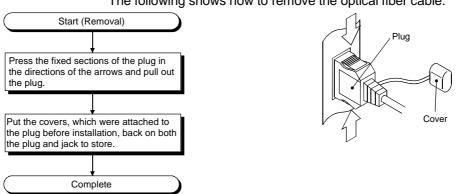


(b) Installing the optical fiber cable The following shows how to install the optical fiber cable:



(c) Removing the optical fiber cable

The following shows how to remove the optical fiber cable:



POINT

Data link operation may be executed even if IN and IN or OUT and OUT are connected with an optical fiber cable. However, the loopback function, the network diagnostic function and some of other functions do not operate normally. So, make sure to connect IN and OUT.

5 - 6 5 - 6

5.4.2 Coaxial bus system

This section explain precautions for connection of the coaxial cable and Q80BD-J71BR11 in the coaxial bus system.

(1) Precautions in connecting

- (a) Restrictions on the cable length between the stations
 - When connecting between the network modules, the cable lengths indicated in the table below should be used according to the number of stations connected.

A communication error may occur if a cable length other than the lengths indicated in the table is used.

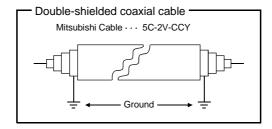
Number of stations connected Station-to-station cable length	2 to 9 stations		10 to 33 stations	
Cable type	3C - 2V	5C – 2V	3C - 2V	5C – 2V
0 to 1 m (3.28 ft.)	imes (cable less than 1m (3.28 in.) in length cannot be used.)			
1 (3.28 ft.) to 5 m (16.4 ft.)	0	Ó	0	0
5 (16.4 ft.) to 13 m (42.65 ft.)	0	0	×	×
13 (42.65 ft.) to 17 m (55.78 ft.)	0	Ó	0	0
17 (55.78 ft.) to 25 m (175.63 ft.)	0	0	×	×
25 (175.63 ft.) to 300 m (984.3 ft.)	0	0	0	0
300 (984.3 ft.) to 500 m (1640.5 ft.)	×	0	×	0

O: Allowed X: Not allowed

- If there is a possibility of adding more stations to expand the existing system, the cables should be installed by considering restriction 1) mentioned above in advance.
- When using a repeater module (models A6BR10 or A6BR10-DC), use the station-to-station cable length for "10 to 33" stations, regardless of the number of stations connected or the number of repeater modules.

(b) Cable installation precautions

- 1) Install the coaxial cables at least 100 mm (3.94 in.) away from other power cables and control cables.
- Consider to use double-shielded coaxial cables in locations where there is excessive noise.

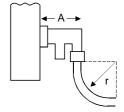


5C-2V connector plug can be applied to double-shielded coaxial cable. Connect the plug to the coaxial cable inside the double-shielded coaxial cable.

Ground the shielded section, external part of the double-shielded coaxial cable, as shown above.

(c) When connecting a coaxial cable, the following restrictions on the bending radius must be observed.

Cable type	Allowable bending radius r [mm (in.)]	Connector A (mm (in.))	
3C – 2V	23 (0.91)		
5C – 2V	30 (1.18)	55 (2.17)	



- (d) Do not pull any of the connected coaxial cables. This may cause a faulty contact and cable disconnection, or damage the Q80BD-J71BR11.
- (e) In the coaxial bus type network system be sure to connect terminal resistors in both end terminals in the network.
- (f) There is a possibility that of a white oxidation product forming on the type F connector due to the use environment, but it does not occur on the portions that are fitted together, so functionally, there will be no problem.

5 - 8 5 - 8

(2) Cable connection

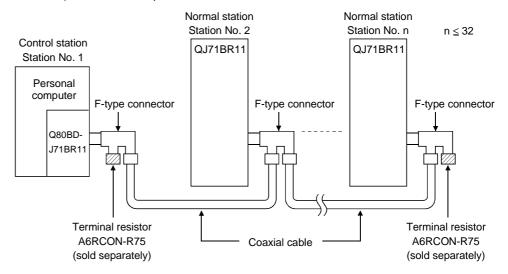
(a) Connection method

Connect the coaxial cable as shown below.

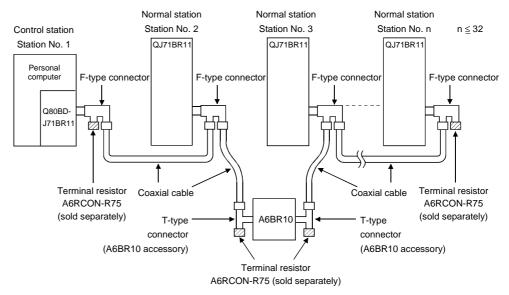
Always install a terminal resistor (sold separately: A6RCON-R75) to the stations connected at both ends.

The F-type connector comes with the Q80BD-J71BR11.

1) Without a repeater module



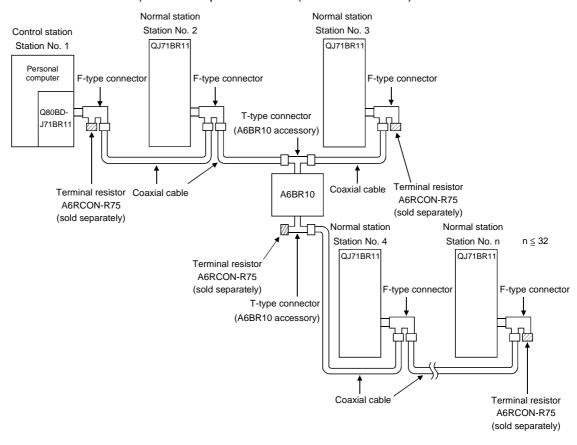
2) With a repeater module (series connection)



REMARK

For details about the repeater module (A6BR10), see the following user's manual attached to the product:

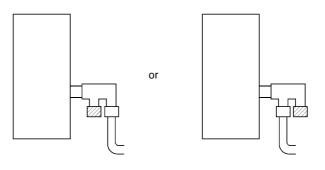
Model A6BR10/A6BR10-DC MELSECNET/10 Coaxial Bus System Repeater Module User's Manual (IB-66499)



3) With a repeater module (branch connection)

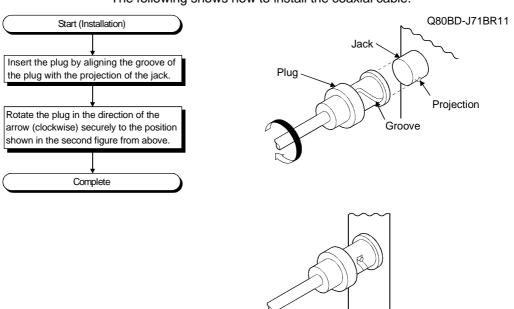
POINT

- (1) By setting stations that will be connected in future (stations that are included in the number of stations but not actually connected) as reserved stations, a communication error can be prevented and the link scan time will not be affected.
- (2) The two connectors of the F-type connector are not dedicated to IN and OUT. A coaxial cable can be connected to either of them.
- (3) A terminal resistor can be placed on either side of the F-type connector.

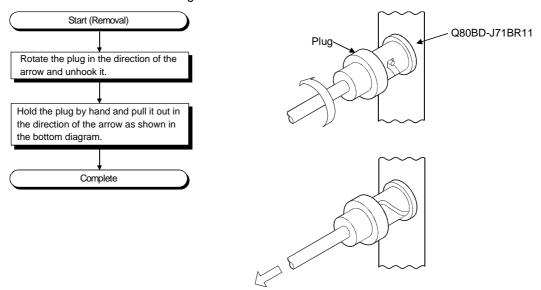


5 - 10 5 - 10

(b) Installing the coaxial cable The following shows how to install the coaxial cable:



(c) Removing the coaxial cable The following shows how to remove the coaxial cable:



(d) Terminal reisistor

Coaxial bus system needs the terminal resistor at the both ends of the network.

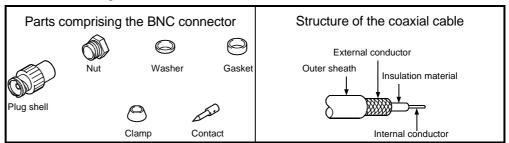
The user need to arrange the terminal resistor (A6RCON-R75) as it is not included in Q80BD-J71BR11.

5 - 11 5 - 11

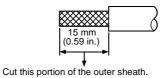
5.4.3 Connecting the connector for the coaxial cable

The following section explains how to attach the BNC connector (connector plug for the coaxial cable) to the cable.

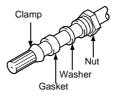
Structure of the BNC connector and coaxial cable
 The following shows the structure of the BNC connector and coaxial cable.



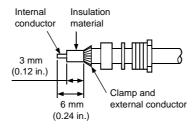
- (2) How to attach the BNC connector and the coaxial cable
 - (a) Cut off the outer sheath of the coaxial cable to the length shown in the diagram below.



(b) Pass the nut, washer, gasket and clamp over the coaxial cable as shown below and unfasten the external conductor.



(c) Cut the external conductor, insulation material and internal conductor to the dimensions shown below. However, cut the external conductor to the same dimension as the tapered section of the clamp and smooth it down to the clamp.



(d) Solder the contact to the internal conductor.



5 - 12 5 - 12

(e) Insert the connector assembly in (d) into the plug shell and screw the nut into the plug shell.



REMARK

Note the following precautions when soldering the internal conductor and contact.

- Make sure that the solder does not bead up at the soldered section.
- Make sure there are no gaps between the connector and cable insulator or they do not cut into each other.
- Perform soldering quickly so the insulation material does not become deformed.

5 - 13 5 - 13

5.5 Standalone Check of the MELSECNET/H Board (Offline Tests)

Before executing the data link operation, check the MELSECNET/H board and the cables.

Select a test item using the mode setting switch on the "Board information" screen in the MNETH Utility.

The following three test are available for the offline tests:

Self-loopback test

This test checks the hardware of the internal circuits, including the send/receive circuit of the MELSECNET/H board, as well as the cables.

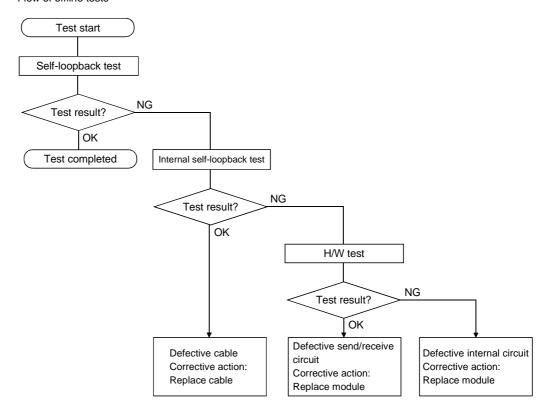
(2) Internal self-loopback test

This test checks the hardware of the internal circuits, including the send/receive circuit of the MELSECNET/H board.

(3) Hardware test

This test checks the hardware inside the MELSECNET/H board.

Flow of offline tests



REMARK

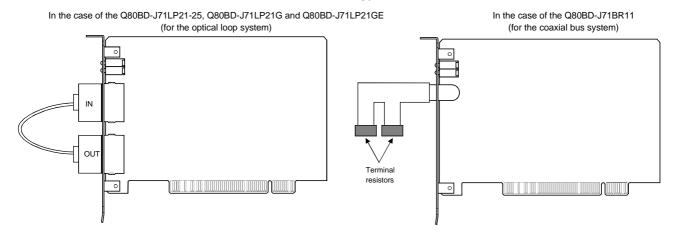
The data link operation cannot be executed normally if at least one station is placed in the test mode (offline) during data linking (online).

5 - 14 5 - 14

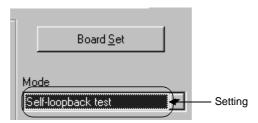
5.5.1 Self-loopback test

In this section, a check of the hardware, including the MELSECNET/H board itself, the transmission and reception lines in the transmission system and the cable, is conducted.

(1) Connect optical fiber cables to the IN and OUT connectors of the Q80BD-J71LP21-25, Q80BD-J71LP21G and Q80BD-J71LP21GE.
In the case of the Q80BD-J71BR11 (for the coaxial bus system), connect terminal resistors to the two Type F connectors.



(2) Set the mode setting in the "Board Information" screen of the MNETH Utility on "Self-loopback test."



5 - 15 5 - 15

- (3) Click the Board Set button in the "Board Information" screen of the MNETH utility to run the self-loopback test, checking the LED status in the "Board Information" screen to confirm the execution state.
 - If T. PASS blinks during the test, judge that the test is completed normally when it blinks 20 times.

Also, if the test ends abnormally, the ERROR LED will blink as shown below to indicate the relevant error information.

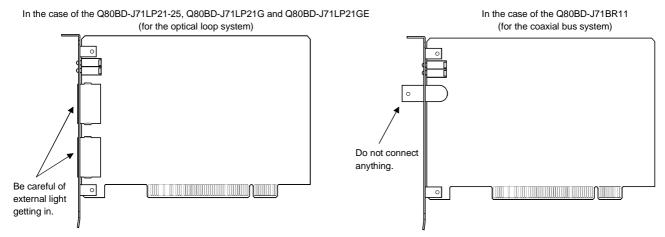
- (a) Optical Loop System (Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE)
 - 1) "TIME" LED lights up
 - The forward loop cable is broken.
 - The forward loop's transmission side and reception side cables are not connected.
 - 2) "DATA" LED lights up
 - The reverse loop cable is broken.
 - The reverse loop's transmission side and reception side cables are not connected.
 - 3) The "CRC", "OVER" and "AB.IF" LEDs light up on the F.LOOP and R.LOOP sides
 - · The cable is defective.
 - 4) "UNDER" LED lights up
 - · Hardware error.
 - The cable was disconnected during the test.
 - · The cable was broken during the test.
- (b) Coaxial Bus System (Q80BD-J71BR11)
 - 1) "TIME" LED lights up
 - The connector is disconnected.
 - 2) The "CRC", "OVER" and "AB.IF" LEDs light up on the F.LOOP and R.LOOP sides
 - The connector is defective.
 - 3) "DATA" and "UNDER" LED lights up
 - · Hardware error.
 - The connector was disconnected during the test.

5 - 16 5 - 16

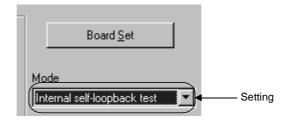
5.5.2 Internal self-loopback test

In this section, a check of the hardware, including the transmission and reception lines in the transmission on the MELSECNET/H board itself, is conducted.

(1) Optical fiber cables are not connected to the Q80BD-J71LP21-25, Q80BD-J71LP21G and Q80BD-J71LP21GE (for the optical loop system). However, be careful that no external light enters from outside the connectors.
In the case of the Q80BD-J71BR11 (for the coaxial bus system), do not connect terminal resistors to the two Type F connectors.



(2) Set the mode setting in the "Board Information" screen of the MNETH utility on "Internal self-loopback test."



5 - 17 5 - 17

(3) Click the Board Set button in the "Board Information screen of the MNETH utility to run the Internal self-loopback test, checking the LED status in the "Board Information" screen to confirm the execution state.

If T. PASS blinks during the test, judge that the test is completed normally when it blinks 20 times.

Also, if the test ends abnormally, the ERROR LED will blink as shown below to indicate the relevant error information.

- (a) Optical Loop System (Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE)
 - The "CRC", "OVER", "AB.IF", "TIME", "DATA" and "UNDER" LEDs light up.
 - · Hardware error.
- (b) Coaxial Bus System (Q80BD-J71BR11)
 - The "CRC", "OVER", "AB.IF", "TIME", "DATA" and "UNDER" LEDs light up.
 - · Hardware error.

REMARK

If an error occurs in the coaxial bus system, the "M/S.E" LED or "PRM.E" LED may light up besides the "CRC", "OVER", "AB.IF", "TIME", "DATA" and "UNDER" LEDs lighting up.

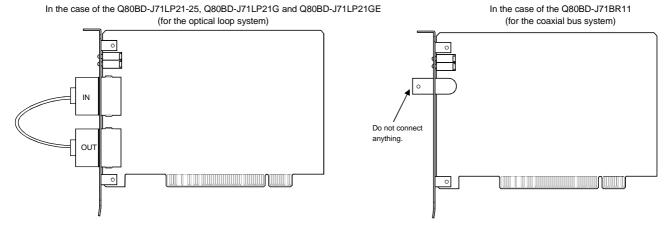
When requesting repairs of the MELSECNET/H board, be sure to inform the service technician of the LED lighting state.

5 - 18 5 - 18

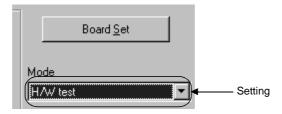
5.5.3 H/W test

This test checks the internal hardware on the MELSECNET/H board.

(1) Connect the optical fiber cables to the IN and OUT sides of the Q80BD-J71LP21-25, Q80BD-J71LP21G and Q80BD-J71LP21GE (for the optical loop system). In the case of the Q80BD-J71BR11 (for the coaxial bus system), do not connect a Type F connector or any terminal resistors.



(2) Set the "H/W test" in the mode settings in the "Board Information" screen of the MNETH utility.



(3) Click the Board Set button in the "Board Information" screen in the MNETH utility to run the H/W test, and check the execution state by the status of the LED's in the "Board Information" screen.

If T. PASS blinks during the test, judge that the test is completed normally when it blinks 20 times.

Also, if the test ends abnormally, the ERROR LED will blink as shown below to indicate the relevant error information.

(a) Both the optical loop system (Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE) and the coaxial bus system (Q80BD-J71BR11) in common

If the following LED's light up, it means that the corresponding error has occurred, so replace the MELSECNET/H board.

- 1. "CRC" LED lights upROM Check Error
- 2. "OVER" LED lights upRAM Check Error
- 3. "AB.IF" LED lights upTimer, interrupt function check error
- (b) Optical loop system (Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE) only
 - 1. "TIME" LED lights upForward loop broken line check error
 - 2. "DATA" LED lights upReverse loop broken line check error

5.6 Offline Tests

The offline tests check the cable connection status of the network module and MELSECNET/H board.

REMARK

This section explains concerning the MELSECNET/H board.

See the following manuals concerning network module settings.

- Q corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network)
- QnA/Q4AR Corresponding MELSECNET/10 Network System Reference Manual

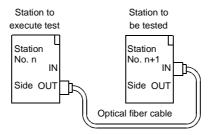
5.6.1 Station to station test

In the station to station test, the hardware of the MELSECNET/H board, network modules and cables between two adjacent stations can be checked. The following explains how to conduct the station to station test:

(1) Connecting the cable

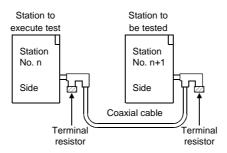
(a) Optical loop system

Connect IN and OUT of network modules, Q80BD-J71LP21-25, Q80BD-J71LP21G or Q80BD-J71LP21GE with an optical fiber cable.



(b) Coaxial bus system

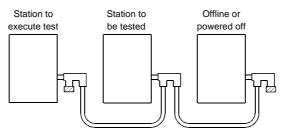
Connect network modules or Q80BD-J71BR11 with a coaxial cable.



5 - 20 5 - 20

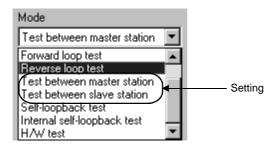
REMARK

Before conducting the station to station test when three or more stations are connected by the coaxial bus system, any stations that are not tested should be switched to offline or powered off.



(2) Test mode settings

In the mode settings in the MNETH utility's "Board Information" screen, set the Station No. n, Station No. n + 1 stations' respective "Test between master station" and "Test between slave station" settings.



(3) Start of inter-station test

Set the mode setting on "Test between master station" or "Test between slave station" and click the Board Set button.

This operation is performed in the order of control station \rightarrow normal station.

5 - 21 5 - 21

(3) Click the Board Set button in the "Board Information" screen of the MNETH utility to run the station to station test, checking the LED status in the "Board Information" screen to confirm the execution state.

If T. PASS blinks during the test, judge that the test is completed normally when it blinks 20 times.

Also, if the test ends abnormally, the following ERROR LED or L. ERR. LED will blink as shown below to indicate the relevant error information.

- (a) Optical Loop System (Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE)
 - 1) "TIME" LED lights up
 - The forward loop cable is broken.
 - The forward loop's transmission side and reception side cables are not connected.
 - 2) "DATA" LED lights up
 - The reverse loop cable is broken.
 - The reverse loop's transmission side and reception side cables are not connected.
 - 3) The "CRC", "OVER" and "AB.IF" LEDs light up on the F.LOOP and R.LOOP sides
 - · The cable is defective.
 - 4) "UNDER" LED lights up
 - · Hardware error.
 - The cable was disconnected during the test.
 - The cable was broken during the test.
- (b) Coaxial Bus System (Q80BD-J71BR11)
 - 1) "TIME" LED lights up
 - The connector is disconnected.
 - 2) The "CRC", "OVER" and "AB.IF" LEDs light up on the F.LOOP and R.LOOP sides
 - The connector is defective.
 - 3) "DATA" and "UNDER" LED lights up
 - · Hardware error.
 - The connector was disconnected during the test.

5.6.2 Forward loop/Reverse loop test

Using the forward loop / reverse loop test you can check the Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE network module and cable hardware after all the stations have been connected with optical fiber cable, and can also check if the IN and OUT cables have been connected correctly.

POINT

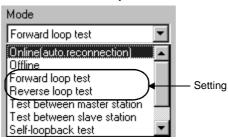
The forward loop/reverse loop test can be used only when the Q80BD-J71LP21-25, Q80BD-J71LP21G or Q80BD-J71LP21GE is used as the control station. If it is a normal station, carry out the test from the control station of the network where the normal station is connected.

(1) Test mode settings

If you are performing the forward loop test, set the station executing the forward loop test on "Forward loop test" in the mode settings in the "Board Information" screen of the MNETH utility.

Also, for stations other than the station where the test is being run, treat them as Online.

If you are performing the reverse loop test, set the station executing the forward loop test on "Reverse loop test" in the mode settings in the "Board Information" screen of the MNETH utility.



(2) Start of the test

Set the mode setting on "Forward loop test," "Reverse loop test" or "Online", then click the Board Set button.

This operation is performed in the order of control station \rightarrow normal station.

(3) Checking the test results

Click the Board Set button in the "Board Information" screen in the MNETH utility to run the forward loop/reverse loop test, and check the execution state by the status of the LED's in the "Board Information" screen.

If T.PASS blinks during the test, judge that the test is completed normally when it blinks 20 times.

Also, if the test ends abnormally, the ERROR LED or the L.ERR.LED will blink as shown below to indicate the relevant error information.

- 1) The "TIME," "DATA" and "UNDER" LED's blink on the F.LOOP and R.LOOP sides.
 - The cable or the other station is abnormal and loop back occurred.
- The "CRC", "OVER" and "AB.IF" LED's blink on the F.LOOP and R.LOOP sides
 - The cable is defective.
- 3) The "TIME" and "DATA" LED's blink on the F.LOOP and R.LOOP sides.
 - The wiring is wrong.
 Check and correct the cable connections before and after the station where the error occurred.

5 - 23 5 - 23

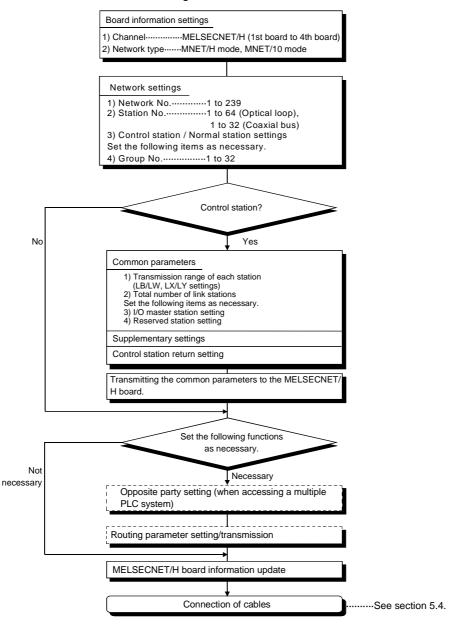
6

6 PARAMETER SETTINGS

It is necessary to set the MELSECNET/H board's parameters using the MNETH utility in order to operate the MELSECNET/H.

In setting of the parameters, after the MELSECNET/H is selected, it can be set even to the details of the application functions.

A flow chart of the settings is shown below.



REMARK

Data links can be executed even if the parameters are not set.

In that case, the MELSECNET/H board operates with the default state displayed in the "Board Information" screen for the channel, network type, network No., station No., control station/normal station settings and group No.

6

6.1 Board Information Settings

This sets the channel and network type for the MELSECNET/H board that is being used. Perform the settings in the "Board Information" screen of the MNETH utility.

(1) Channel

Select the MELSECNET/H board for which settings are performed in the MNETH utility.

A maximum of 4 MELSECNET/H boards can be installed in one personal computer. The channels that are assigned to each MELSECNET/H board can be checked by clicking the Channel No. Confirm button in the "Board List" screen.

(2) Network type

The settings in the mode for the network system where the MELSECNET/H board is connected can be changed.

Item	Corresponding network	
MNET/H mode	MELSECNET/H	
MNET/10 mode	MELSECNET/10	

(2) Precautions

- (a) If the MELSECNET/10 mode was selected by mistake instead of the MELSECNET/H mode, and as a result both modes coexist on the network, the network system operates in the following manner.
 - The network operates normally.
 - The available functions and the capacity of the link devices (LB/LW) are limited to those of the MELSECNET/10 mode.
- (b) If a QnA/A MELSECNET/10 network module is connected to a network system in the MELSECNET/H mode by mistake, the network system operates in the following manner.
 - If the control station is MELSECNET/H board (MELSECNET/H mode), the MELSECNET/10 network module of the normal station is disconnected.
 - If the control station is the MELSECNET/10 network module, the MELSECNET/H board in the MELSECNET/H mode of a normal station operates within the range of the MELSECNET/10 mode.

If the MELSECNET/H board is MELSECNET/10 mode, it operates normally even if the MELSECNET/10 network module is connected.

(c) If a MELSECNET/H board or network module with the transmission speed set at 10 Mbps is connected by mistake to a MELSECNET/H board with the transmission speed set at 25 Mbps, or if a 25 Mbps MELSECNET/H board or network module is connected to a MELSECNET/H board with the transmission speed of 10 Mbps, the system will not operate normally. Always connect the components of a network together after confirming the transmission speed of the network.

6.2 Network Settings

These are the parameters used to build the MELSECNET/H network.

The MELSECNET/H board's network No., station No., control station/normal station setting and group No. are set.

6.2.1 Network No.

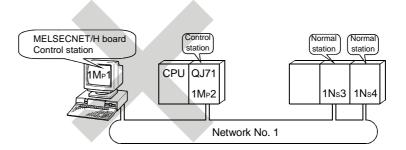
Set the Network No. of the network which the MELSECNET/H board is connected to. To set the network No, set it in the "Board Information" screen in the MNETH utility.

(1) Valid setting range

1 to 239

(2) Caution

(a) The same network No. cannot be set except for normal stations.



6.2.2 Station No.

Set the station No. of the MELSECNET/H board.

Set the station No. in the "Board Information" screen of the MNETH utility.

(1) Effective setting range

The effective setting range differs depending on the type of network.

- Optical loop system-----1 to 64
- Coaxial bus system -----1 to 32

(2) Caution

(a) Make settings so that the same station No. does not exist in more than one place in the same network.

6.2.3 Control station/Normal station

Set the Control station / Normal station setting on the MELSECNET/H board. Set the Control station / Normal station setting in the "Board Information" screen of the MNETH utility.

6.2.4 Group No.

This sets the MELSECNET/H board's group No. Set the group No. setting in the "Board Information" screen of the MNETH utility.

(1) Valid setting range

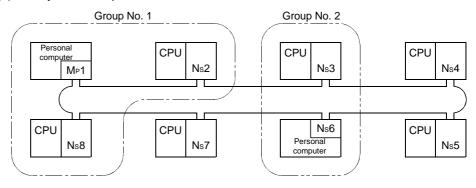
0: No group setting

1 to 9: When in the MELSECNET/10 Mode

1 to 32: When in the MELSECNET/H Mode

(2) Cautions

(a) Only one Group No. can be set for 1 station.



6.2.5 Mode setting

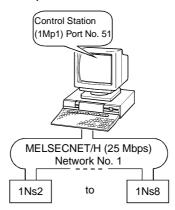
This sets the MELSECNET/H board's operating mode.

Selection item	Content
Online (auto. reconnection)	Normal operation (return to system) is selected. When the system is started up, data communications is started and automatic return to system operations, etc. are carried out.
Offline	Operation stop (disconnecting the station) is selected. Handshake and data communications with other stations is not done.
Forward loop test	The connection state with the forward loop side's optical fiber cable is checked. The hardware test operation is selected. For details, see section 5.6.2, "Forward loop / Reverse loop test."
Reverse loop test	The connection state with the reverse loop side's optical fiber cable is checked. The hardware test operation is selected. For details, see section 5.6.2, "Forward loop / Reverse loop test."
Test between master station	Selects the control station side for performing the hardware test for checking the lines between two stations. For details, see section 5.6.1, "Station to station test."
Test between slave station	Selects the normal station side for performing the hardware test for checking the lines between two stations. For details, see section 5.6.1, "Station to sation test."
Self-loopback test	Selects a hardware test of the MELSECNET/H board itself with the connection cables. For details, see section 5.5.1, "Self-loopback test."
Internal self-loopback test	Selects a hardware test of the MELSECNET/H board itself. For details, see section 5.5.2, "Internal self-loopback test."
H/W test	Selects the internal hardware test for the MELSECNET/H board itself. For details, see section 5.5.3, "H/W test."

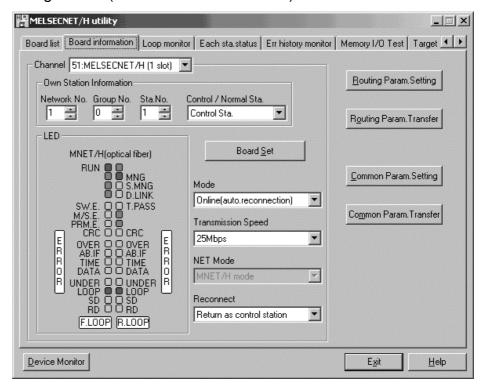
6.2.6 Parameter setting example

An example of setting the MELSECNET/H board parameters is shown below.

(1) System example



(2) Setting screen (Board information screen)



6.3 Common Parameters

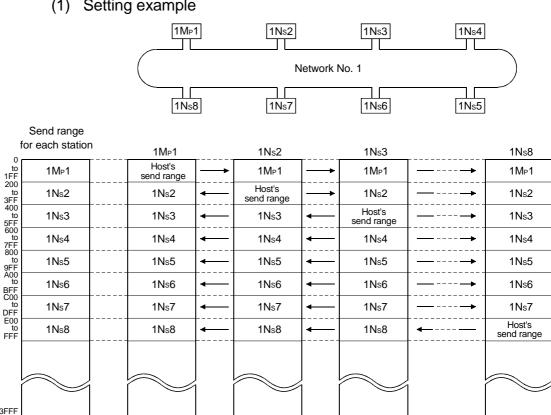
The common parameters are used to set the cyclic transmission ranges of LB, LW, LX and LY that can be sent by each station in a single network. The common parameter settings are required only for the control station. The data of the common parameters are sent to the normal stations when the network starts up.

6.3.1 Send range for each station (LB/LW settings)

Assign the send ranges of the link devices (LB/LW) for each station in 16 point units for

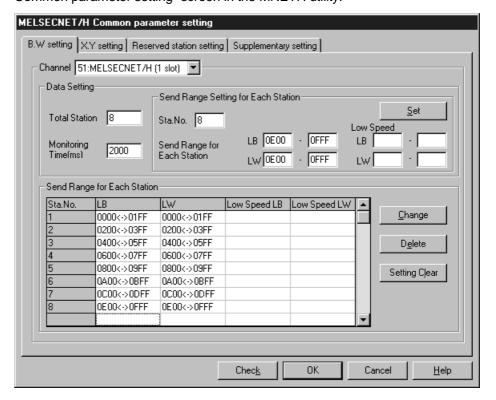
The following example shows send range for each station (LB/LW settings) when each of 512 points is assigned to station numbers 1 to 8.

(1) Setting example



6 - 7 6 - 7 (2) Screen settings (Common parameter setting screen)

Perform the setting of each station's transmission range (LB/LW settings) in the
"Common parameter setting" screen in the MNETH utility.



POINT

In order to validate the guarantee of 32-bit data, it is necessary that the number of points in each station's transmission range be a multiple of 20H for LB and a multiple of 2 for LW and that each station's top device No. be set so that the LB is a multiple of 20H and the LW is a multiple of 2. (For details on guaranteeing 32-bit data, see the "Q corresponding MELSECNET/H Network System Reference Manual (PLC to PLC Network).)"

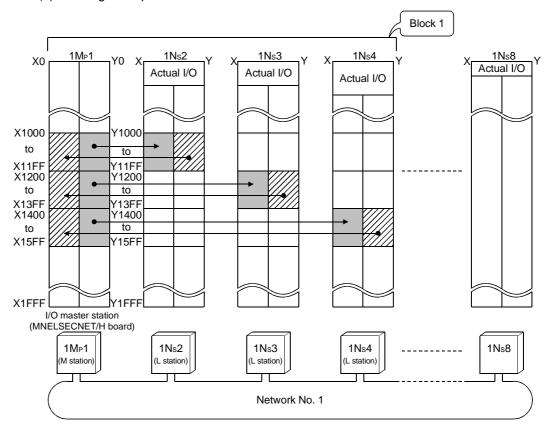
6.3.2 Send range for each station (LX/LY settings)

Set send ranges for each station of LX/LY, which represent the amount of data that can be sent by each station in a single network in one (two) block units.

The link devices (LX/LY) between the I/O master station (M station) and other station (L station) are assigned 1:1.

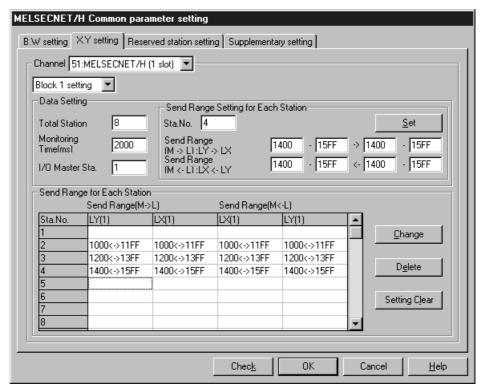
The following example shows send ranges for each station (LX/LY settings) when each of 512 points of link devices (LX/LY) is assigned to station numbers 2 to 4, using station number 1 (host) as the I/O master station of block 1.

(2) Setting example



(2) Screen settings (Common parameter settings)

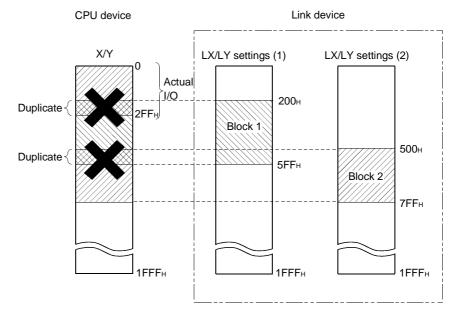
To set the transmission range for each station (LX/LY settings), perform the settings in "Common parameter settings" in the MNETH utility.



(3) Precaution

Duplicate link device ranges cannot be assigned to each station between block 1 and block 2.

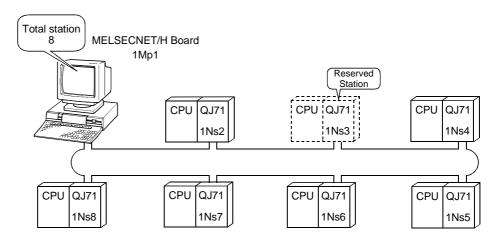
If the network module is the I/O master station, they must be set not to duplicate with the actual I/O (the range of input/output numbers to which the actual module is installed) of the OPU module mounted.



6.3.3 Total station

This sets the total number of control stations, normal stations and reserved stations in a single network.

Set the total number of link stations in the "Common parameter settings" screen in the MNETH utility.



6.3.4 Designation of the I/O master station

The master station (the control station) can be set in each block for 1:1 communication using LX/LY regardless of the station type (either the control station or the normal station).

Each of block 1 and block 2 has one I/O master station, which is set by the send range (LX/LY) of each station in each block.

Specify the I/O master station with the "Common parameter setting" screen of the MNETH utility if the MELSECNET/H board is control station.

6.3.5 Reserved station setting

The reserved station designation function is used to prevent stations to be connected in future (stations that are not actually connected but included in the total number of (slave) stations of a network) from being treated as faulty stations.

The reserved stations do not affect the link scan time; they do not slow down the network even if used as reserved stations.

Specify the reserved station with the "Common parameter setting" screen of the MNETH utility.

6.4 Supplementary Setting

The supplementary settings are included in the common parameter settings. They can be used when more specific applications are required. The default settings should normally be used.

The supplementary settings (common parameter settings) are required only for the control station. The parameters are sent from the control station to normal stations when the network starts up.

Perform the supplementary settings with the "Common parameter setting" screen of the MNETH utility.

6 - 11 6 - 11

6.5 Control Station Return Setting

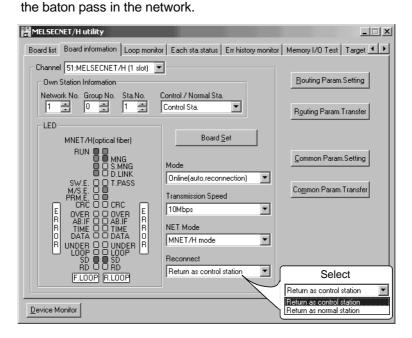
This parameter is used to designate the type of station used by the control station when returning to the network in the control station return control.

Select this parameter to make the control station return as a normal station without stopping the baton pass in the system in operation.

The control station return setting is required only for the control station.

(1) When "Return as control station" is selected (default) The baton pass (cyclic transmission, transient transmission, etc.) temporarily stops because the control station sends the parameters to the normal stations and returns to the network.

(2) When "Return as normal station" is selected The control station returns to the network as a normal station, without stopping



REMARK

- When "Return as control station" is selected, the network stop time becomes longer because the baton pass is stopped, but the common parameters can easily be changed only by resetting the Board of the control station.
- If "Return as normal station" is selected, the network does not stop because the
 control station returns to the network without stopping the baton pass.
 However, it is necessary to reset the CPUs of all the stations after changing the
 common parameters of the control station while the network is in operation.
 If only the board resetting is performed, the MELSECNET/H board (Control
 station) detects the parameter mismatch error and disconnects it.

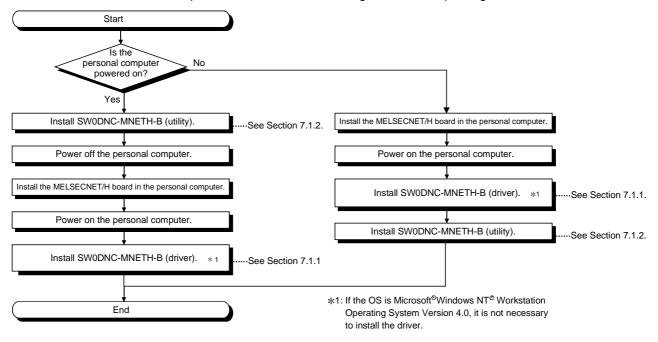
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7 INSTALLING AND UNINSTALLING THE SOFTWARE PACKAGE

The methods for installing and uninstalling the software package, and copying the registered icons to a FD and installing them are explained.

7.1 Installation

This explains the method for installing the software package.



7 - 1 7 - 1

7.1.1 Installing the Driver

This explains installing the driver for the MELSECNET/H board.

POINT

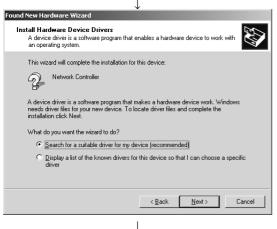
- (1) If you are using Windows NT® Workstation 4.0, it is not necessary to install the MELSECNET/H board driver.
- (2) If you are installing the driver from a FD, use FD Disk 6.
- (1) When Microsoft® Windows® 2000 Professional Operating System is used

This section explains installing the driver for the MELSECNET/H board when Windows® 2000 Professional is used.

- Mount the MELSECNET/H board to the personal computer, power on the personal computer to start Windows[®] 2000 Professional.
- 2) When the screen shown left is displayed, click the Next> button.



3) When the screen shown left is displayed, select "Search for a suitable driver for my device [recommended]," then click the Next> button.



(To the next page)

(From the previous page)



4) When the screen shown left is displayed, select "Specify a location" and click the Next> button.



5) When the screen shown left is displayed, enter "D:\disk6\Win2000\Us" for "Copy manufacturer's files from." Insert CD-ROM into the CD-ROM drive, then click the OK button.

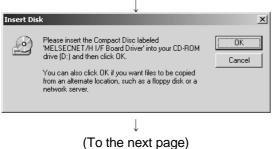
("D:" explained in the above indicates the name of the CD-ROM drive. Enter the name of the CD-ROM drive to be used.)

REMARK

If you are installing the driver using a FD, input "A:\Win2000\Us" for "Copy files from:."



6) When the screen shown left is displayed, click the Next> button.



7) Insert the CD-ROM or FD indicated in the screen shown left in the personal computer, then click the OK button.

(From the previous page)



8) When the screen shown left is displayed, input "D:\disk6\Win2000\us" for the "Copy files from:" (As explained above, "D:" is the name of the CD-ROM driver. Input the name of the CD-ROM driver you are using.)

*1: If the installation does not start even if the OK button is clicked, click the Browse button and specify D:\disk6\Win 2000\Us\Amneth2k.sys directly, then click the OK button.

REMARK

If you are installing the driver using a FD, input "A:\Win2000\Us" for "Copy files from:."

9) The installation is complete when the screen shown left is displayed.

Click the Finish button.

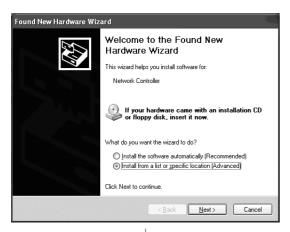


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(2) When Microsoft® Windows® XP Professional Operating System is used

This section explains installing MELSECNET/H board driver when Microsoft® Windows® XP Professional Operating System is used.

- 1) Mount a MELSECNET/H board to a PC, and then power on the PC to start Windows® XP Professional.
- 2) When the screen shown left is displayed, select "Install from a list or specific location (Advanced) " and then click the NEXT> button.





- 3) As the screen shown left is displayed, select "Search for the best driver in these locations".
 - Check "Include this location in the search" and enter "D:\Disk6\Win2000\Us".

("D:" mentioned above indicates CD-ROM drive name. Make sure to enter the CD-ROM drive name to be used.)

Insert the CD-ROM, and then click the Next> to start the drive installation.

REMARK

When installing the driver from a FD, make sure to enter "A:\Win2000\Us".



4) When the screen shown left is displayed, this means that the installation is completed.

Click the Finish button.

(3) When Microsoft® Windows® 95 Operating System or Microsoft® Windows® 98 Operating System is used

This explains installing the driver for the MELSECNET/H board when Windows® 95 or Windows® 98 is used.

- Mount the MELSECNET/H board to the personal computer, then power on the personal computer to start Windows[®].
- 2) When the screen shown left is displayed, click the Next button.



What do you want Windows to do?

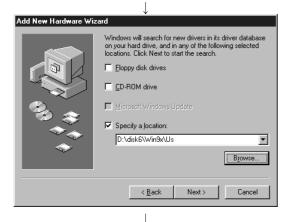
What do you want Windows to do?

Search for the best driver for your device.

Recommended).

Display a list of all the drivers in a specific location, so you can select the driver you want.

3) When the screen shown left is displayed, select "Search for the best driver for the your device (Recommended).", then click the Next button.



(Continued on the next page.)

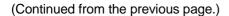
4) When the screen shown left is displayed, check "Specify a location.", then input D:\disk6\Win9x\Us as the search location.

(In the above explanation, "D:" is the name of the CD-ROM drive. Input the name of the CD-ROM drive you are using.)

When setting is completed, load the CD-ROM in the CD-ROM drive, then click the Next button.

REMARK

When installing the driver from a FD, make sure to enter "A:\Win9x\Us" as the search location.





5) Windows will search for the driver file for the device.

Click the Next button.



(End)

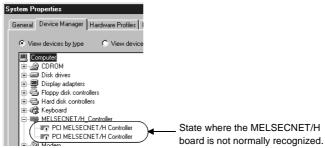
6) When the screen shown left is displayed, the driver installation process is finished. Click the Finish button.

POINT

(1) When the MELSECNET/H board is used with Windows® 2000 Professional, Windows® XP Professional, Windows® 95 and Windows® 98, it is necessary to install the MELSECNET/H board driver and the utility.

Also, if only the MELSECNET/H board driver is installed, the MELSECNET/H board driver will not start. (The item "PCI MELSECNET/H Controller" in the

board driver will not start. (The item "PCI MELSECNET/H Controller" in the [Device Manager] screen will be displayed as shown below and will not be properly recognized by Windows.)



(2) If the MELSECNET/H board is not normally recognized even with both the MELSECNET/H board driver and the utulity installed, restart the personal computer after deleting "PCI MELSECNET/H Controller" in the [Device Manager] screen, then register the MELSECNET/H board driver again.

7.1.2 Installing the utility

This section explains installing the utility.

The screens of Windows® 2000 Professional are used in the explanation.

Therefore, these screens are slightly different from other operating systems.

Install the software package with reference to REMARK .

POINT

- (1) When using the following Operating systems, logon as a user who has administrator authority.
 - Windows® XP Professional
 - Windows® 2000 Professional
 - Windows NT® Workstation 4.0
- (2) Disassociate all applications included in the startup procedure, then carry out installation after restarting Windows[®].
- (3) Make sure to close other applications running on Windows® (including resident software such as antivirus software) before installation.
- (4) If you are installing the utility from floppy disks, use Disk 1 to Disk 5 of the floppy disks.
- (5) To install the utility, open "Add/Remove Programs" in Control Panel and install it from there.

It can also be installed by running "Setup.exe" directly.

Double click on the "Setup.exe" file. You can then begin the installation process from 6). (If you are installing it from the floppy disks, double click on "Setup.exe" in Disk 1.)



(Continued on the next page.)

- 1) Power on the personal computer and start Windows®.
- 2) Click [Start] [Settings] [Control Panel] and open Control Panel.

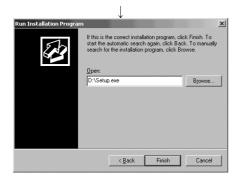
REMARK

When Windows® XP Professional is used, open [Start] – [Control Panel].

(Continued from the previous page.)







Open "Add/Remove Programs" and select "Add programs".

When the screen shown left is displayed, click the CD or Floppy Disk button.

REMARK

When Windows® 95, Windows® 98 or Windows NT® Workstation 4.0 is used, open "Add/Remove Programs" and click the Install button.

4) When the screen shown left is displayed, load the CD-ROM in the CD-ROM drive.

When the CD-ROM is loaded, click the Next button.

REMARK

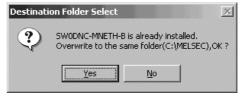
When installing from the FD, insert Disk 1 in the FD drive.

5) When the screen shown left is displayed, "Setup.exe" will be detected. Click the Finish button and start the installation.

If "Setup.exe" is not found, click the Browse and change the location to the location where the "Setup.exe" file is stored.

REMARK

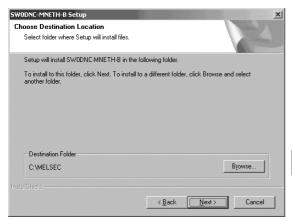
When overwriting the software, the following screen will be displayed. Clicking the button and overwriting the software saves the information set by the MNETH utility and updates the MNETH utility only.

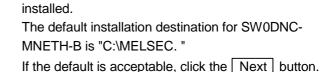


(Continued from the previous page.)



6) When the screen shown left is displayed, select "English," then click the OK button.





7) Designate the folder where the program is to be

if the default is acceptable, click the [Next] button.

When intending to change the installation destination folder, click the Browse button and change it.

REMARK

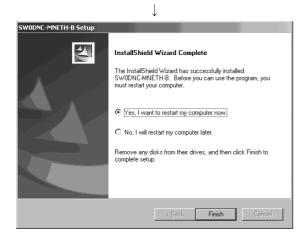
If the following screen is displayed during installation, click the Yes button and continue with the installation.



8) If the screen shown left is displayed, the installation is finished.

When restarting the computer, make sure the "Yes, I want to restart my computer now." item is checked, then click the Finish button.

When restarting the computer later, select the "No, I'll restart my computer later." item, then click the Finish button.



↓ (End)

POINT

- (1) If the installation fails, uninstall the software package if it can be uninstalled.
- (2) When reinstalling the software, power off the computer after uninstalling the software, then power the computer back on and reinstall the software.

7 - 10 7 - 10

7.2 Icons to be Registered

When installing the software packages, the icons shown below are registered in [Start] - [Program] - [MELSEC].

REMARK

When Windows® XP Professional is used, the following icons are registered in [Start] - [All Programs] - [MELSEC].

Icon	Utility name	Description
	MELSECNET/H Utility	Starts MNETH Utility.
20	Error Viewer * 1	Starts Error viewer.
Ę	Device Monitor Utility	Starts Device monitor utility.
②	MELSEC Data Link	Starts HELP for the Data Link Function.
*	Function HELP	Starts HELF for the Data Link Function.

^{*1:} It can be used only with Windows® 95 and Windows® 98.

7 - 11 7 - 11

7.3 Uninstalling the Software Package

This section explains the uninstalling the software package.

The screens of Windows® 2000 Professional are used in the explanation.

Therefore, these screens are slightly different from other Operating systems.

Uninstall the software package with reference to REMARK.

POINT

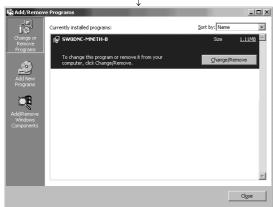
- (1) Be sure to uninstall the software using the Control Panel. Do not attempt to start "Uninstaller.exe" directly.
- (2) When reinstalling the software, turn off the computer after uninstalling the software, then turn the computer back on and reinstall the software.



1) Click [Start] – [Settings] – [Control Panel] and open Control Panel.

REMARK

When Windows® XP Professional is used, open [Start] – [Control Panel].

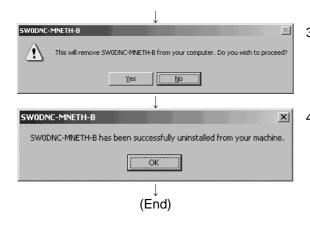


 Open "Add/Remove Programs" and select "Change/Remove programs".
 Select SW0DNC-MNETH-B and click the Change/Remove button.

REMARK

When Windows® 95, Windows® 98 or Windows NT® Workstation 4.0 is used, select SW0DNC-MNETH-B and click the Add/Remove button.

When Windows® XP Professional is used, select SW0DNC-MNETH-B and click the Change/Remove button.



- 3) The screen shown left will be displayed, so click the Yes button and start the uninstallation process.
- 4) When the uninstallation process is finished, click the OK button.

7 - 12 7 - 12

7.4 Copying the Program to Floppy Disks, then Installing It

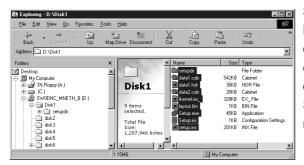
This section explains how to install the software in the case that the personal computer has no CD-ROM drive.

On the CD-ROM, folders have been created with capacities which enable them to be copied onto a single FD easily.

If the CD-ROM drive is selected using Windows Explorer, Disk 1 to Disk 6 will be displayed, so prepare the same number of formatted floppy disks as the number of folders to be copied.

It is not necessary to copy Setup.exe in the CD-ROM's root directory.

(1) Copying folders to the FD

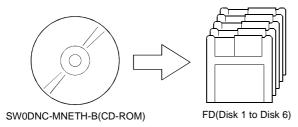


Select the drive where the CD-ROM is set.

Next, select all the files in SW0DNC-MNETH-B Disk 1 and copy them to the FD. When copying of Disk 1 is completed, use the same method to copy the files in the directory to the other floppy disks.

Setup.exe for FD is included in Disk 1, so it is not necessary to copy Setup.exe used by the CD-ROM.

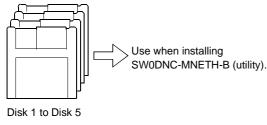
(2) Copy Completion



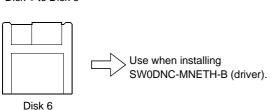
When copying of the program to the FD is completed, insert the floppy disks one at a time in the personal computer where the program is to be installed and install SW0DNC-MNETH-B.

Carry out the installation according to the messages shown in the installation screen. See section 7.1, "Installing the Software Package" for details of the installation operation.

(3) Using FD



When copying of the program to each FD is completed, use them in the installations shown at left.



7 - 13 7 - 13

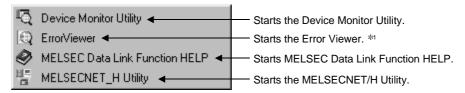
8 UTILITY OPERATIONS

8.1 Utility Common Operations

This section explains the common operations for each utility.

8.1.1 Starting an utility

Start an utility by clicking one of the following menus inside [Start] - [Programs \ast^1] - [MELSEC] menu.

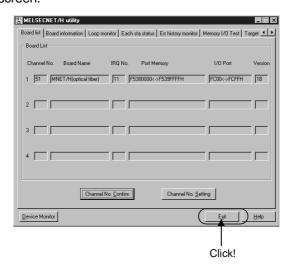


- *1: When Microsoft[®] Windows[®] XP Professional Operating System is used, [All programs] is displayed.
- *2: The error viewer is available only when Microsoft® Windows® 95 Operating System or Microsoft®Windows® 98 Operating System is used as OS.

8.1.2 Ending an utility

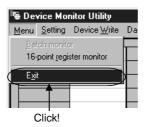
The following explains how to end an utility.

(1) To end the MNETH utility, click the **Exit** button at the bottom of the utility screen.



Q

(2) To end the device monitor utility, click [Menu] - [Exit] from the menu bar. When a dialog box is displayed, click the Yes button.



(3) To end the error viewer, click [Log] - [Exit] menu from the menu bar.



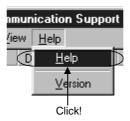
8.1.3 Displaying the help screen

The following explains how to display the utility's help screen.

(1) To display the utility's help screen, click the Help button at the lower right-hand corner of the utility screen.



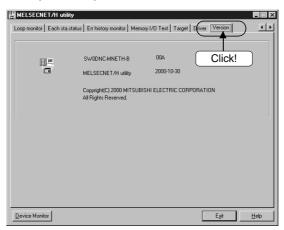
(2) To display the help screen for the device monitor utility and error viewer, click [Help] - [Help] from the menu bar.



8.1.4 Verifying the version

The following explains how to verify the utility version.

(1) To verify the utility's version, click the "Version" tab.



(2) To verify the version information for the device monitor utility and error viewer, click [Help] - [Version] from the menu bar.

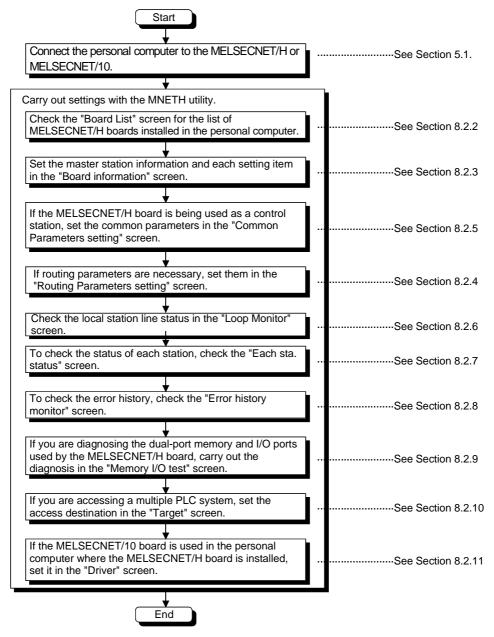


8.2 MNETH Utility

This section explains the MNETH utility's screen explanations and operation methods. Use of the MNETH utility is explained here using the screen explanations when the Q80BD-J71LP21-25 and Windows® 98 are installed.

8.2.1 Operating procedure

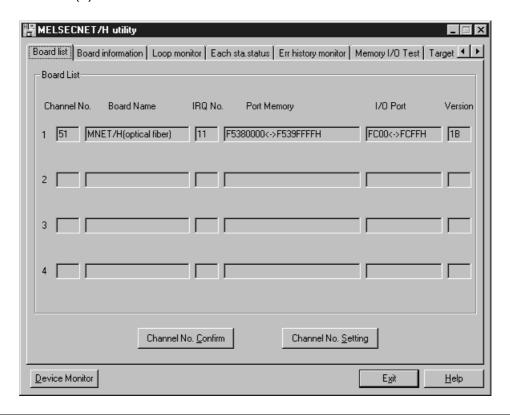
This section explains the MNETH utility's operating procedure.



8.2.2 Board list screen operation

This operation displays the hardware information, and confirms and sets the channel No. set in the MELSECNET/H board.

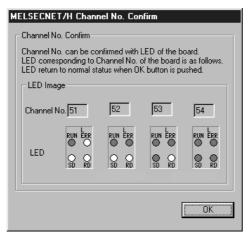
(1) Board List Screen



ltem Content			
Channel No.	Displays the MELSECNET/H board's channel No.		
	Displays the model name of the connected MELSECNET/H board. The contents displayed on the screen and the corresponding MELSECNET/H board's model name are as shown below.		
	Screen Display	Model Name	
Board Name	MNET/H (Optical fiber)	Q80BD-J71LP21-25 Q80BD-J71LP21G Q80BD-J71LP21GE	
	MNET/H (Coaxial)	Q80BD-J71BR11	
IRQ No.	Displays the IRQ used by the MELSECNET/H board.		
Port Memory	Displays the range of dual-po	rt memory occupied by the MEI	_SECNET/H board.
I/O Port	Displays the range of the I/O	ports occupied by the MELSEC	NET/H board.
Version	Displays the MELSECNET/H	board's ROM version.	
Channel No. Confirm Button	Displays the "Channel No. Confirm" screen. For details, see (2), "Channel No. Confirm."		
Channel No. Setting Button	Displays the "Channel No. Setting" screen. For details, see (3), "Channel No. Setting."		

(2) Channel No. Confirm Screen

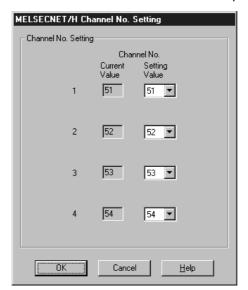
Clicking the Channel No. Confirm screen in the "Board List" screen displays the following dialog box, and enables the user to check the channel No. by the status of the display LED's on the MELSECNET/H board.



Item	Content
Channel No.	Displays the channel No. of the installed MELSECNET/H board.
LED	Displays the display LED lighting on status on the MELSECNET/H board.

(3) Channel No. Setting Screen

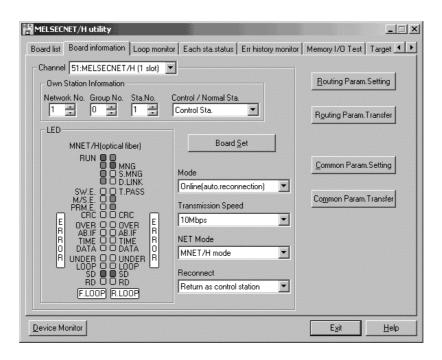
Clicking the Channel No. Setting screen in the "Board List" screen displays the following dialog box, and enables the user to change the channel No. of the MELSECNET/H board installed in the personal computer.



Item		Content	
	Current Value	Displays the current channel No.	
Channel	Setting Value	Changes the channel No. (Setting range: 51 to 54)	

8.2.3 Board information screen operation

The Board information screen is used to set and display various information about the installed MELSECNET/H board.



Item	Content			
Channel	Sets a channel (MELSECNET/H board) to be used.			
Own Station Information	Displays information and changes setting on the host.			
Board Set button	Resets the MELSECNET/H board to renew the information of the MELSECNET/H boselected in Channel.			
	Performs mode setting for the I	MELSECNET/H board, and displays the present value.		
	Mode	Description		
	Online (auto. reconnection)	Used for normal communication.		
	Offline	Enters the state in which there is no connection to the network.		
	Forward loop	Check the forward loop status.		
	Reverse loop	Check the reverse loop status.		
Mode	Test between master station	Perform station to station test. (Select at control station)		
iwode		Perform station to station test (Select at normal station)		
	Self-loopback test	Check the hardware including the cable and communication circuit for transmission system by the MELSECNET/H board.		
	Internal self-loopback test	Check the hardware including the communication circuit for transmission system by the MELSECNET/H board.		
	H/W test	Check the hardware of the MELSECNET/H board.		

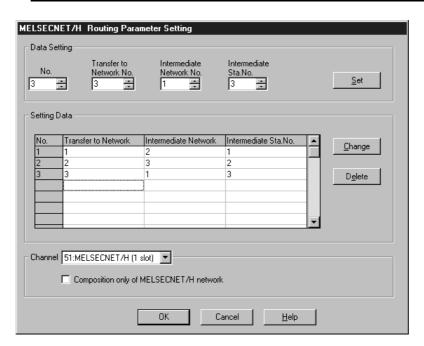
Item			Cor	ntent	
	Selects the trans	smission s			
	When the Q80BD-J71LP21G, Q80BD-J71LP21GE and Q80BD-J71BR11 is used and				
	when "MNET10 Mode" is selected in the NET Mode, "25 Mbps" cannot be selected.				
Transmission Speed	Transmissio	n speed		Description	
	10 Mbps	л оросса	Selected when the	e MELSECNET/H (10 Mbps) is connected.	
	25 Mbps			e MELSECNET/H (25 Mbps) is connected.	
	-				
				7/H board is connected. When "25 Mbps" is	
	selected in the ti	ransmissio	on speed item abov	ve, this item cannot be selected.	
NET mode	Net Mo	ode		Description	
	MNET/H Mod		Selected when the MELSECNET/H is connected.		
	MNET/10 Mo	de	Selected when the	e MELSECNET/10 is connected.	
	Designates by s	tation type	e when a control sta	ation reconnects	
	-			be selected only when the MELSECNET/H	
	board is a contro	-	no corcon and can	be delected only when the MEEGEONE I/II	
				Description	
Reconnect	Reconr Return as cor		Causes the MELS	SECNET/H board to reconnect as a control	
	station	itioi	station.	SECTIVE 1/11 Board to reconnect as a control	
	Return as no	rmal		SECNET/H board to reconnect as a normal	
	station		station.		
	Diamlay the ame		in of the MELOCOL	NET/LIb a and	
			us of the MELSECI	NET/FI DOATO.	
	LED name		ED status		
	RUN	Normal			
	MNG S.MNG	Control s		For Q80BD-J71BR11	
	D.LINK	During d	trol station	LED	
	T.PASS		ass execution	MNET/H(coaxial) RUN 🔘 🔘	
	SW.E		etting error	□ □ MNG □ □ S.MNG	
	M/S.E.	Duplicate	e error on station	O O D.LINK SW.E. O O T.PASS	
			and control station	M/S.E. □ □ PRM.E. □ □	
LED	PRM.E.	Paramet		CRC UU	
	CRC	+	eck error		
	OVER AB.IF		ry delay error ving data are 1.	R JNDER 0	
	TIME	Time over		SD 00	
	DATA	Reception	on data error	RD O G	
	UNDER	Transmi	ssion data error		
	LOOP		/reverse loop		
		receiving			
	SD		ng transmitted		
	RD	Data bei	ng received		
Routing Param. Setting	Displays the "F	Routing F	Parameter Setting	ı" screen	
				etting operation for details.	
Button				<u> </u>	
Routing Param. Transfer	Transfers the routing parameter that has been set.				
Button					
Common Param. Setting	Displays the "Common Parameters Setting" screen				
Button	This button is displayed only when the MELSECNET/H board is a control station.				
dec section 0.2.3, dominant arameters detting decem operation for details.			s setting screen operation" for details.		
Common Param. Transfer			on parameters.		
Button	I his button is c	ııspıayed	only when the M	ELSECNET/H board is a control station.	

8.2.4 Routing Parameter Setting screen operation

The routing parameter setting screen is used to set the transfer destination, relay destination network number, and relay destination station number.

POINT

- (1) The routing parameters are common with channels No. 51 to 54. They cannot be set one channel No. at a time.
- (2) Up to 64 routine parameters can be set.



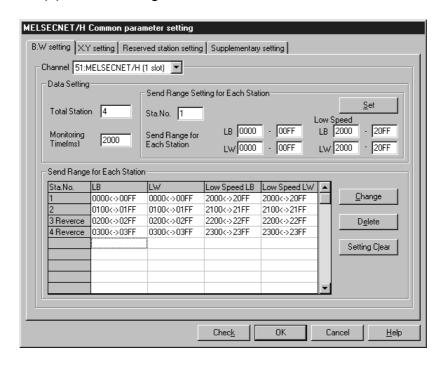
Item	Content
No.	Input the number of the line to set or change. (Setting range : 1 to 64)
Transfer to Network No.	Input the transfer destination network number
Intermediate Network No.	Input the relay destination network number
Intermediate Sta. No.	Input the relay destination station number.
Set button	Enters the data that has been set in Set data.
Setting Data	Displays a list of data that has been set so far.
Change button	Selecting a line to be changed and clicking the button will change the entered set data. (Double-clicking the line to be changed also does the same operation.)
Delete button	Selecting a line to delete and clicking the button will delete the entered set data.
Channel	Selects the channel No. where the settings are to be changed. If the routing function from the MELSECNET/H board is used and the PLC CPU is accessed, when the configuration of the network system is the MELSECNET/H only, click the check box and add a check mark. *1

*1: If a MELSECNET/10 board exists in the network, do not add a check mark to the check box. The maximum transmitted data size differs in the MELSECNET/H and the MELSECNET/10 (1920 bytes in the MELSECNET/H and 960 bytes in the MELSECNET/10), so there is danger of data being cut when they are transmitted via the MELSECNET/10.

8.2.5 Common parameter setting screen operation

This operation sets the common parameters necessary for establishing data links. Display is possible only when the MELSECNET/H board is in the control station.

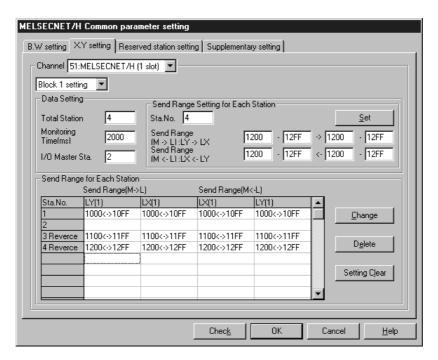
(1) B, W setting screen



Item		Content	
Channel		Selects the channel (MELSECNET/H board) performing the settings.	
Total Station		Input the total number of stations (including the control station) in the network that the MELSECNET/H board is the control station for.	
Monitoring Time		Sets the link scan time monitoring time.	
	Sta. No.	Input the station No. of the station to be set or changed.	
	LB	Input the LB (Link relay) range.	
Send Range for	LW	Input the LW (Link register) range.	
Each Station	Low Speed LB	Input the range of the LB (link relay) used in the low speed cyclic transmission function.	
	Low Speed LW	Input the range of the LW (link register) used in the low speed cyclic transmission function.	
Set button		Registers the set contents in each station's transmission range.	
Send Range for	Each Station	Displays the set data contents up to the present time in one list.	
Change button		Select the line to change, then when the button is clicked, the data which are registered can be changed. (If the line to be changed is double clicked, the same operation can be performed.)	
Delete button		Select the line to change, then when the button is clicked, the data which are set can be deleted.	
Settings Clear Button		Initializes the contents of all the B and W settings registered in the "Common parameter setting" screen.	

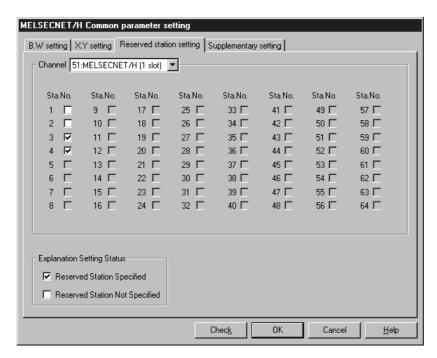
8 - 11 8 - 11

(2) X, Y setting screen

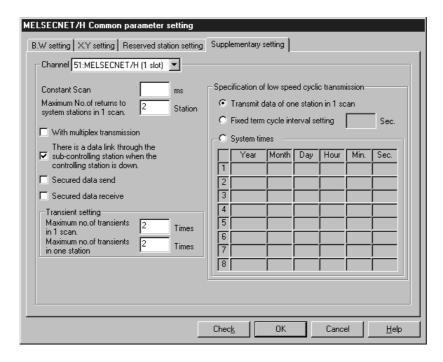


Item		Content		
Channel		Selects the channel (MELSECNET/H board) performing the settings.		
Block 1 setting (Block 2 setting)	Switches the block that is set.		
Total station		Input the total number of stations (including the control station) in the network that the MELSECNET/H board is the control station for.		
Monitoring Time		Sets the link scan time monitoring time.		
I/O Master Sta.		Input the station No. of the I/O master station.		
	Sta. No.	Input the station No. of the station to be set or changed.		
Send Range for Each Station	Sending Range (M → L)	Assigns link devices (LX, LY) 1 to 1 between the I/O master station (M station) and other stations.		
Lacii Station	Sending Range (M ← L)	Assigns link devices (LX, LY) 1 to 1 between the I/O master station (M station) and other stations.		
Set button		Registers the set contents in each station's transmission range.		
Send Range for	Each Station	Displays the set data contents up to the present time in one list.		
Change button		Select the line to change, then when the button is clicked, the data which are registered can be changed. (If the line to be changed is double clicked, the same operation can be performed.)		
Delete button		Select the line to change, then when the button is clicked, the data which are set can be deleted.		
Setting Clear Button		Initializes the contents of all the X and Y settings registered in the "Common parameter setting" screen.		





Item	Content
Channel Selects the channel (MELSECNET/H board) performing the settings.	
Sta. No.	This sets reserve stations. If a check mark is placed in the check box, that station is set as a reserve station.



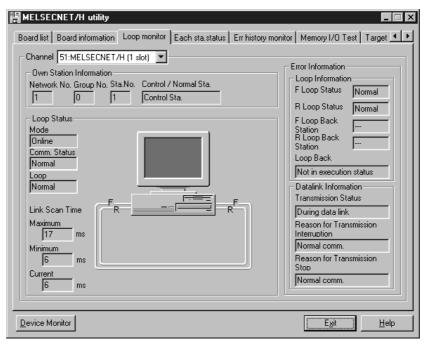
(4) Supplementary setting screen

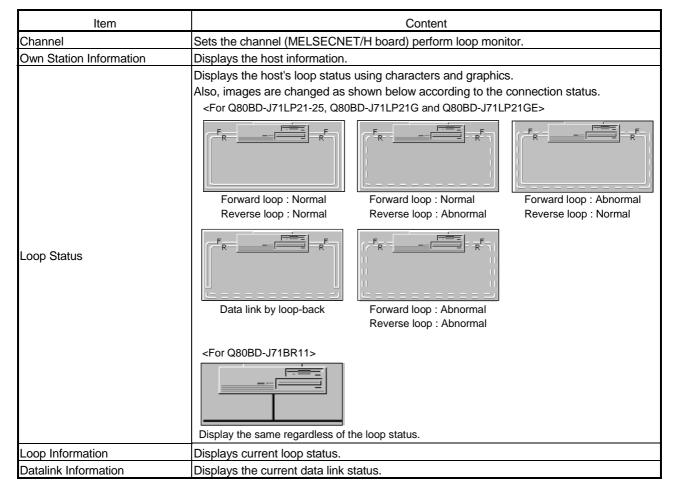
	Item	Content
Channel		Selects the channel (MELSECNET/H board) performing the settings.
Constant scan		Sets a constant link scan. (Setting range: 1 to 500 ms) If it is not run, do not input anything.
Maximum No. of 1 scan	f returns to system stations in	Sets the number of stations with transmission errors that can undergo return to system in 1 link scan.
With multiplex tr	ansmission	Set when running the multiplex transmission function.
	ink through the sub-controlling controlling station is down.	Set when executing the control station move function.
Secured data se	end	Set when preventing data separation of link data in station units in cyclic
Secured data re	ceive	transmissions. *1
Transient setting	Maximum No. of transients in 1 scan.	Sets the number of transients that can be executed in one link scan by one network (total for 1 network as a whole). (Valid setting: 1 to 255 times; Default: 2 times)
	Maximum No. of transients in one station.	Sets the number of transients that can be executed in one link scan by one station. (Valid setting: 1 to 10 times; Default: 2 times)
Specification of	Transmit data of one station in 1 scan	Set in cases such as when data to be transmitted to another station are collected and sent one station at a time in 1 link scan.
low speed cyclic	Fixed time cycle interval setting	Carries out low speed cyclic transmission at the preset intervals. (Valid setting interval: 1 to 65535 s.)
transmission	System times	Carries out low speed cyclic transmission in accordance with the preset time. (Settings: Year, Month, Day, Hour, Minute, Second)

^{*1:} Data separation prevention is when older data with the meaning of 2-word (32 bit) link data such as the positioning unit's current position are prevented from being separated into new data with 1-word (16 bit) units due to cyclic transmission timing.

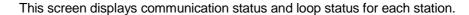
8.2.6 Loop monitor screen operation

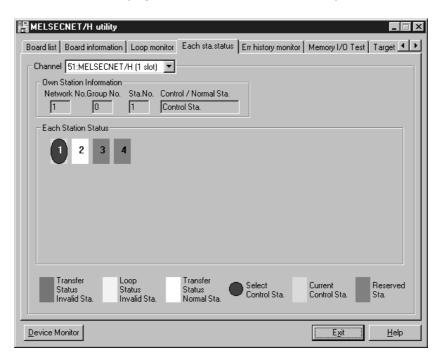






8.2.7 Each station status screen operation





ltem	Content		
Channel	Sets the channel (MELSECNET/H board) perform each station status.		
Own Station Information	Displays the host information.		
Each Station Status	Displays the communication status and loop status for every link station that is set using parameters. (Red) Transfer Status Invalid Sta Indicates a baton-pass status error. (Yellow) Loop Status Invalid Sta Indicates a forward/reverse loopstatus error. (White) Transfer Status Normal Sta Indicates the station in normal communication. (Blue) Select Control Sta Indicates the station that is set as the control station. (Aqua) Current Control Sta Indicates the station that is actually operating as the control station. (Gray) Reserve Sta Indicates the station that is set as a reserved station. However, this is valid only when the host is executing		

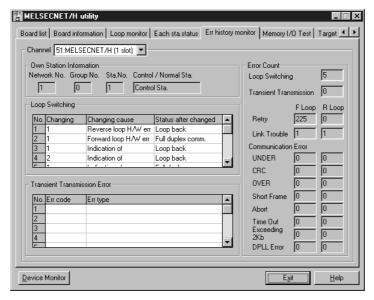
8 - 16 8 - 16

8.2.8 Error history monitor screen operation

This screen displays the history of loop errors, communication errors, and transient transmission errors.

POINT

- (1) Up to 16 items are stored in the loop switch data history. When there are more than 16 items, items will be erased from the history, starting with the oldest one.
 - (From old to new: No. 1 to No. 16)
- (2) See the following manuals for details on the error code and error type of a specific transient transmission error that may be displayed:
 - Q corresponding MELSECNET/H network system reference manual (PLC to PLC network)
 - QnA/Q4AR corresponding MELSECNET/10 network system reference manual



Item		Content		
Channel	Sets the channel (Sets the channel (MELSECNET/H board) perform error history monitor.		
Own Station Information	Displays the host i	Displays the host information.		
	Displays the loop of (For optical loop)	Displays the loop change factors and status after changing. (For optical loop)		
	Item	Description		
Loop Switching	Sta. No.	Displays the station number that requested a loop switch and loop back.		
	Factor	Displays the factor by which loop switch and loop back were executed.		
	Switched to	Displays the data link status after a loop switch.		

Item	Content				
	Displays the error code occurring when transient transmission was executed at the host.				
	Item		Description		
Transient Transmission Error	Error code	Displa	isplays the code of the error occurring due to transient transmiss		
	Error type Displays the type of the			error occurring due to transient transmission.	
Displays the number of error occurrences.					
	Item		Description		
	Loop Switching		Displays the numb	er of loop switch/loopback.	
	Transient	[Displays the number of error occurrence due to transient		
	Transmission		transmission.		
	Retry		Displays the number of retries (retry at communication error).		
	Link Trouble Displays the number of line error occurrence.		er of line error occurrence.		
			Item	Description	
	Communication Error		UNDER	Displays the number of UNDER errors.	
Error Count * 1			CRC	Displays the number of CRC errors.	
			OVER	Displays the number of OVER errors.	
		n	Short Frame	Displays the number of short frame (data message is too short.) errors.	
		''	Abort	Displays the number of AB.IF errors.	
			Time Out	Displays the number of Time Out errors.	
			Exceeding 2 kb	Displays the number of Exceeding 2Kb errors.	
			DPLL Error	Displays the number of DPLL (Cannot identify data normally due to synchronization/modulation) errors.	
				Synononization/modulation/ entries.	

*1: The following explains the error causes and the corresponding corrective actions. In addition to Error history monitor screen, they can be confirmed using the following link special registers (SW). For more information of each link special registers (SW), refer to Q Corresponding MELSECNET/H network system reference manual (PLC to PLC network).

	•	·	
Item	Link special register	Error cause	Corrective action
Loop Switching	SW00CEH	Power ON/OFF status of the station, cable fault, noise, etc.	*2
Transient transmission	SW00EEH	Power ON/OFF status or CPU module error of the external station, cable fault, noise, etc.	Confirm the error code of the transient transmission error, and then take the corrective action.
Retry	SW00С8н, SW00С9н	Power ON/OFF status of the station, cable fault, noise, etc.	*2
Link Trouble	SW00CCH, SW00CDH	Power ON/OFF status of the adjacent station, cable fault, noise, etc.	*2
UNDER	SW00В8н, SW00С0н	Power ON/OFF status of the adjacent station, cable fault, etc.	*2
CRC	SW00В9н, SW00С1н	Disconnection status of the station that sends data to the corresponding station, cable fault, hardware error, noise, etc.	*2
OVER	SW00BAH, SW00C2H	Cable fault Handware americans	*2
Short Frame	SW00BBH, SW00C3H	Cable fault, Hardware error, noise, etc.	*2
Abort	SW00BCH, SW00C4H	Disconnection status of the station that sends data to the corresponding station, cable fault, hardware error, noise, etc.	*2
Time Out	SW00BDH, SW00C5H	Insufficient data link monitor time, cable fault, noise, etc.	*2
Exceeding 2Kb	SW00BEH, SW00C6H	Oakla fault Handunga anna maisa ata	*2
DPLL Error	Cable fault, Hardware error, noise, etc. SW00BFH, SW00C7H		*2

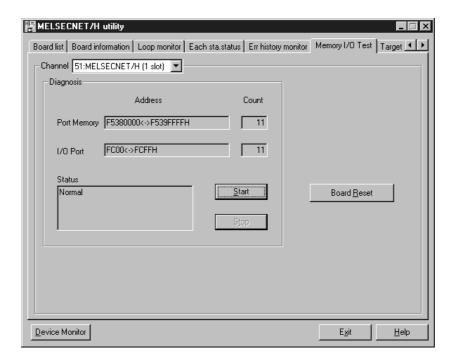
- *2: Basically, the number of times for each error occurrence does not matter. However, following corrective actions are required, if the count value raises frequently during operation.
 - (1) Confirm the power ON/OFF statuses of the host station and other station.
 - (2) Check the cable and connector (connector disconnection, loose connection, cable breakage, cable length, etc).
 - (3) Conduct self loopback test, internal self-loopback test and hardware test.
 - (4) Conduct station to station test and forward/reverse loop test.
 - (5) Wire the cable again with reference to the network module manual and MELSECNET/H board manual. In addition, install the devices again with reference to the user's manual for the CPU module.

8.2.9 Memory, I/O Test screen operation

This operation diagnoses between the MELSECNET/H board and personal computer.

POINT

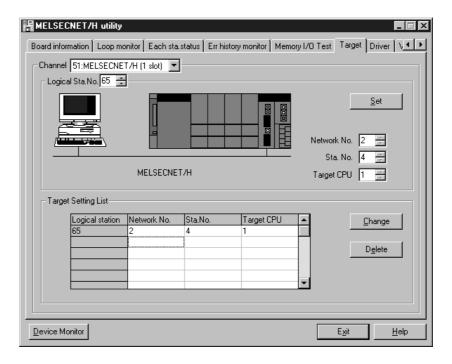
- (1) If you are starting the diagnosis, do so after disconnecting the external cables.
- (2) If you desire to switch screens during the diagnosis, click the Stop button, switching screens after stopping the diagnosis.



Item	Content	
Channel	Sets the channel (MELSECNET/H board) perform the memory, I/O diagnosis.	
Diagnosis	Displays the address where the diagnosis is being performed, the number of times it is being performed and the status.	
Start Button	Starts the memory, I/O diagnosis.	
Stop Button	Stops the memory, I/O diagnosis.	
Board Reset Button	Resets the MELSECNET/H board.	

8.2.10 Target screen operation

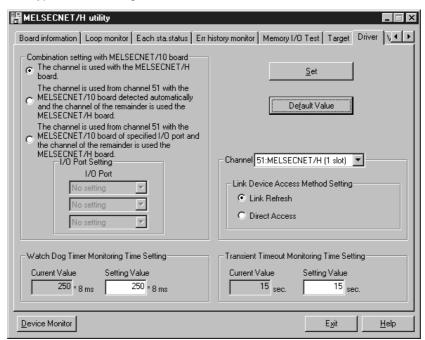




Item	Content	
Channel	Sets the channel (MELSECNET/H board) perform the target settings.	
Logical Sta. No.	Input the logical sta. No. which is setting or changing the settings (setting range: 65 to 239).	
Network No.	Input the network No. of the station doing the accessing.	
Sta. No.	Input the station No. of the network module controlled by the multiple PLC system.	
Target PLC	Input the target PLC which is being accessed.	
Set Button	Registers the setting contents in the list of external devices.	
Change Button	Select the line to change. When this button is clicked, the data that are registered can be changed. (The same operation is performed when the line being changed is double clicked.)	
Delete Button	Select the line to be deleted. When this button is clicked, the registered logical station No. can be deleted.	

8.2.11 Driver screen operation

This operation sets the combination settings between the MELSECNET/H board and MELSECNET/10 board and sets the link device access system and the time for each type of monitoring.



ltem	Content			
Set Button	Enables the setting contents. The channel No. settings are reassigned after the Set button is clicked.			
Default Value Button	Returns the set contents to the default values.			
	Carries out settings in the case that a MELSECNET/10 board is used in the same personal computer as the MELSECNET/H board. For details concerning combination settings with the MELSECNET/10 board, see "Appendix 1, Channel No. Assignment Method."			
	Item	Description		
Combination settings with MELSECNET/10 board	The channel is used with the MELSECNET/H board.	Select if the MELSECNET/10 board installed in the personal computer is not used (default).		
	The channel is used from channel 51 with the MELSECNET/10 board detected automatically and the channel of the remainder is used the MELSECNET/H board.	Select if all the MELSECNET/10 boards installed in the personal computer are used. Use the channels not used by the MELSECNET/10 boards with the MELSECNET/H board.		
	The channel is used from channel 51 with the MELSECNET/10 board of specified I/O port and the channel of the remainder is used the MELSECNET/H board.	Select if only designated MELSECNET/10 board installed in the personal computer is used. The MELSECNET/10 board that is used is designated by that MELSECNET/H board's I/O port.		
Channel	Sets the channel (MELSECNET/H boa	ard) which sets the link device access method.		
Link Device Access Method Setting	Sets the access method to the link device (LX, LY, LB, LW).			
Watch Dog Timer Monitoring Time Setting	Displays the current value for the watchdog timer's monitoring time and inputs the setting value. (Setting Range: 1 to 32767, Default: 250)			
Transient Timeout Monitoring Time Setting	Displays the current value for the transient time out monitoring time and inputs the setting value. (Setting Range: 1 to 360, Default: 15)			

8.3 Device Monitor Utility

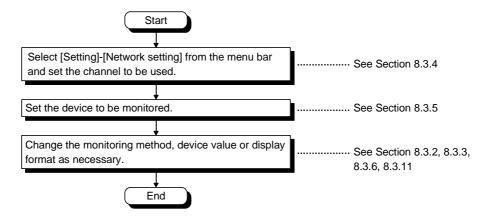
The following explains how to set and operate the device monitor utility.

POINT

In the device monitor utility, SB (Link special relay) and SW (Link special register) are indicated as SM and SD, respectively.

8.3.1 Operation procedure

The following explains how to operate the device monitor utility.



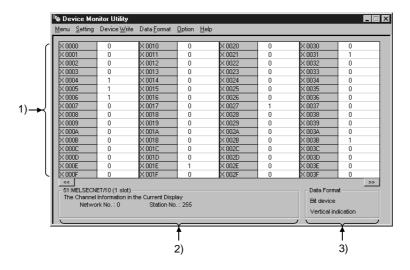
8.3.2 Setting as batch monitoring

Monitors only one device that has been specified.

(1) Selecting the menu

Select [Menu] - [Batch monitoring] from the menu bar. (Selectable for 16-point entry monitor only.)

(2) Display screen



Item	Content	
1) Device information	Displays the current device status.	
	See Section 8.3.9 on how to change the display form.	
2) Network status	Displays the network status currently set.	
	See Section 8.3.4 on how to set the network.	
3) Data format	Shows the display form and device types being displayed	
	(word device and bit device).	
	See Section 8.3.5 on how to change the device type.	
	And, see Section 8.3.9 on how to change the display form.	

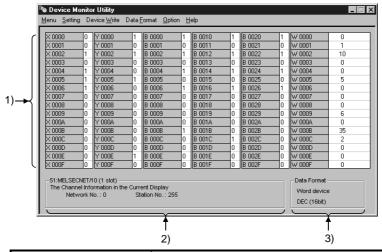
8.3.3 Setting as 16 point entry monitor

Monitors up to five bit devices and one word device simultaneously.

(1) Selecting the menu

Select [Menu] - [16 point entry monitor] from the menu bar. (Selectable at batch monitoring only.)

(2) Display screen



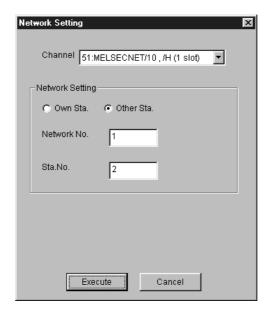
Item	Content	
1) Device information	Displays the current device status.	
	See Section 8.3.9 on how to change the display form.	
2) Network status	Displays the network status currently set.	
	See Section 8.3.4 on how to set the network.	
3) Data format	Shows the display form and device types being displayed	
	(word device and bit device).	
	See Section 8.3.5 on how to change the device type.	
	And, see Section 8.3.9 on how to change the display form.	

8.3.4 Setting the monitoring destination

Sets the network to be used for device monitoring. Set the destination when starting the device monitor utility.

 Selecting the menu Select [Setting] - [Network Setting] from the menu bar.

(2) Dialog box



Item	Content	
Channel	Set the channel to be used.	
Network Setting	Set the own and other stations along with network number and station number.	
Logical Sta. No.	Set the logical station number.	

POINT

- (1) In case of accessing to the multiple PLC, select other station, and enter "0" to the network No. and value of "logical station number" which set in the MNETH utility to the station number.
- (2) When own station is selected in the network setting, network No. "0" and station No. "255" are displayed as the network status.

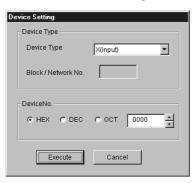
8.3.5 Setting the device to be monitored

Set the device to be monitored.

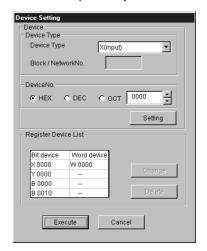
(1) Selecting the menu Select [Setting] - [Device setting] from the menu bar.

(2) Dialog box

For batch monitoring



For 16-point entry monitor



Item	Content
Device Type	Set the type, block number, and network number for the device to be monitored.
Device No.	Set the head number of the device to be monitored. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Register Device List	Displays a list of the devices entered.
Setting button	Enters the item set in Device type and Device number, then adds it to List of devices entered.
Change button	Select the device to be changed and click this button to change the entered data.
Delete button	Select the device to be deleted and click this button to delete it from List of devices entered.

POINT

The only devices that may be monitored using the 16-point entry monitor are those that have random access capability. If a device that is not capable of random-access is specified, a device type error (-3) will occur.

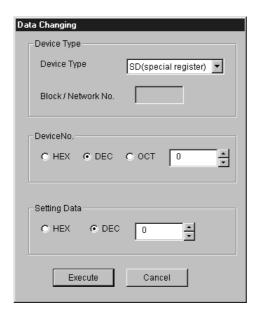
See Chapter 9, "ACCESSIBLE DEVICES AND RANGES" to determine whether or not a device has random-access capability.

8.3.6 Changing word device values

Changes the specified word device data.

Selecting the menu
 Select [Device write] - [Data changing] from the menu bar.

(2) Dialog box



Item	Content
Device Type	Set the type, block number, and network number for the device for which data is to be changed.
Device No.	Set the number of the device for which data is to be changed. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Setting Data	Set the data to be changed. (HEX: Hexadecimal, DEC: Decimal)



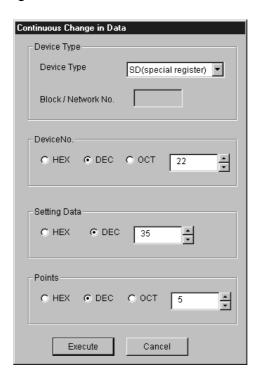
 Configure an interlock circuit in the sequence program so that the entire system works safely at all times for data change control to the PLC in operation.
 Also, determine corrective actions for an event of data communication error between the PC and PLC CPU in use.

8.3.7 Changing word device values continuously

Change the specified word device data for the number of specified points being set.

(1) Selecting the menu Select [Device write] - [Continuous Change in Data] from the menu bar.

(2) Dialog box



Item	Content
Device Type	Set the type, block number, and network number of the device for which data is to be changed.
Device No.	Set the head address of the device number to change data. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Setting Data	Set the data to be continuously changed. (HEX: Hexadecimal, DEC: Decimal)
Points	Set the number of points to perform continuos change of data. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)



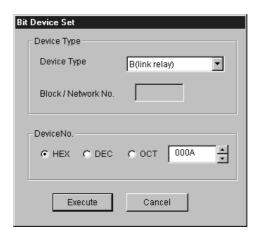
 Configure an interlock circuit in the sequence program so that the entire system works safely at all times for data change control to the PLC in operation.
 Also, determine corrective actions for an event of data communication error between the PC and PLC CPU in use.

8.3.8 Tuning on/off a bit device

Turns on/off the specified bit device.

(1) Selecting the menu Select [Device write] - [Bit device set (reset)] from the menu bar.

(2) Dialog box



Item	Content
Device Type	Sets the type, block number, and network number of the bit device
	to be turned on/off.
Device No.	Sets the number of the bit device to be turned on/off.
	(HEX: Hexadecimal, DEC: Decimal, OCT: Octal)



 Configure an interlock circuit in the sequence program so that the entire system works safely at all times for data change control to the PLC in operation.
 Also, determine corrective actions for an event of data communication error between the PC and PLC CPU in use.

8.3.9 Switching the display form

Switches the device monitoring display to the selected form.

The batch monitoring and 16-point entry monitor have different sets of selectable menus, respectively.

(1) Selecting the menu

Select [Display switch] - [Word (bit) device] from the menu bar.

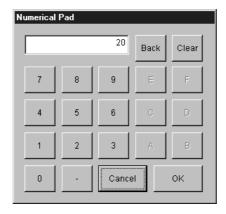
8.3.10 Numeric value input pad

A numeric value input pad is available for setting device values and other numeric parameters. To display the numeric value input pad, select [Options] - [Numerical pad] from the menu bar.

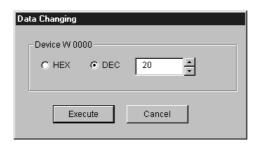
1. Click inside the numeric value input field.



2. The numeric value input pad is displayed. Use the buttons to enter a desired value, and then click the OK button.



3. The value is entered in the system.



8 - 31 8 - 31

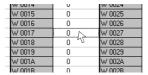
8.3.11 Other operations

Double-clicking the device number on the screen while monitoring changes data in word device and turns on/off the bit device.

(1) Word device

The following explains how to change the word device. (Only when the display form is 16 bit.)

1. Double-click the number of the word device to be changed.



2. As the following dialog box is displayed, set a desired value. Click the Execute button.



Select Yes in the dialog box shown below if the change is acceptable.
 Select No to cancel the operation.



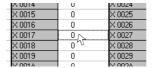


 Configure an interlock circuit in the sequence program so that the entire system works safely at all times for data change control to the PLC in operation.
 Also, determine corrective actions for an event of data communication error between the PC and PLC CPU in use.

(2) Bit device

The following explains how to turn on/off the bit device. However, this operation is available only when the display orientation is "Portrait."

1. Double-click the number of the bit device to be changed.



Select Yes in the dialog box shown below if the change is acceptable.
 Select No to cancel.





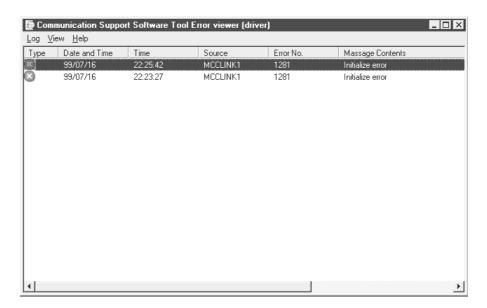
 Configure an interlock circuit in the sequence program so that the entire system works safely at all times for data change control to the PLC in operation.
 Also, determine corrective actions for an event of data communication error between the PC and PLC CPU in use.

8.4 Error Viewer Operation

The following explains how to set and operate the error viewer.

8.4.1 Screen description

The following explains the error viewer screen.



Item	Content				
Туре	The error types are indicated by the symbols shown below.				
	1 : Normal message (Indicates messages generated in normal				
	processing.)				
	① : Warning message (Messages generated to call attention even				
	though it is not an error.)				
	S: Error message (Indicates the details of errors generated in				
	each module. Double-click the line showing				
	this symbol to see a detailed message, then				
	promptly correct the cause of the error.)				
Date and Time	Displays the date of error occurrence.				
Time	Displays the time of error occurrence.				
Source	Displays the source of error occurrence.				
Error No.	Displays the error number.				
Message Contents	Displays the details of error occurrence.				

8.4.2 Log menu

The following explains the contents of log menu.

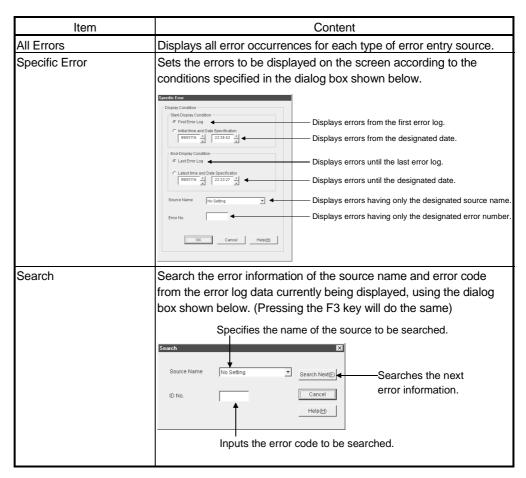


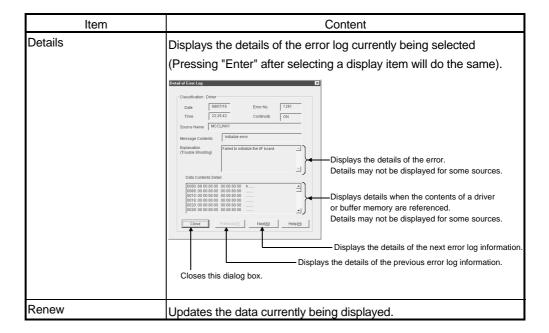
Item		Content			
Selecting error-entry source type	Select the error-entry so viewer.	ource type to be displayed in the error			
	The currently selected i	tems are checked.			
	• Driver	: Displays messages generated by drivers such as common memory device.			
	Basic Middle Ware	: Displays messages generated by the common memory data server and tag control process.			
	Applied Middle Ware	: Displays messages generated by MX Chart and MX Monitor.			
	Others	: Displays messages generated by the application packages.			
Open the Selected File	Open the error log file (*.ELF).				
Save with a Name	Save the error log data of the error entry source (driver, etc) currently being selected to the specified file.				
Delete	currently being displaye	a of the error entry source (driver, etc) ed. displayed on the dialog box.			
Log Setting	Select a processing me logs exceeds the maxin	thod to be used when the number of error num entry.			
	How to Control Messages of Exceeding the L Replace Old Messages Suspend Logging until there will be an en	Overwrites information, starting with the oldest message.			
Exit	End the error viewer.				

8.4.3 Display menu

The following explains the contents of display menu.







9 ACCESSIBLE DEVICES AND RANGES

This chapter explains the devices and ranges that can be accessed during MELSECNET/H board communication.

9.1 Accessible Devices

This section explains the devices that can be accessed during MELSECNET/H board communication.

POINT

The "Batch" in the following table indicates Batch Read and Batch Write. The "Random" in the table indicates Random Read, Random Write, Bit Set, or Bit Reset.

9.1.1 Host (personal computer (control/normal station equivalent))

Device		Accessible/not accessible
X	Batch	O
^	Random	O
Y	Batch	0
ľ	Random	J
SB	Batch	0
SB	Random	O
SW	Batch	
SVV	Random	J
В	Batch	0
В	Random	O
W	Batch	0
VV	Random	O
RECV function for Q/QnA	Batch	0
RECV Tuniction for Q/QnA	Random	×

9 - 1

9

9.1.2 Other station

		Access destination							
Device		A1N	A0J2H A1S(-S1) A1SH A1SJ(-S3) A1SJH(-S8) A2C(J) A2N(-S1) A2S(-S1) A2SH(-S1)	A2A(-S1) A2U(-S1) A2AS(-S1/-S30) A2USH-S1 Q02(H)-A Q06H-A	A3N A3A A3U	A4U	Q2A(-S1) Q3A Q4A Q4AR Q2AS(-S1) Q2ASH(-S1)	Q00J Q00 Q01 Q02(H) Q06H Q12H Q25H Q12PH Q25PH	Personal computer
Х	Batch Random	0	0	0	0	0	0		×
Y	Batch Random	0	0	0	0	0	0		×
L	Batch Random	0	0	0	0	0	0		×
М	Batch Random	0	0	0	0	0	0		×
Special M (SM), SB	Batch Random	0	0	0	0	0	0		×
F	Batch Random	0	0	0	0	0	0		×
T (contact)	Batch Random	0	0	0	0	0	×		- ×
T (coil)	Batch Random		0	0	0	0			- ×
C (contact)	Batch Random	0	0	0	0	0	O ×		×
C (coil)	Batch Random	0	0	0	0	0	O ×		×
T (present value)	Batch Random	0	0	0	0	0	0		×
C (present value)	Batch Random	0	0	0	0	0	0		×
D	Batch Random	0	0	0	0	0	0		×
Special D (SD), SW	Batch Random	0	0	0	0	0	0		×
T (set value main)	Batch	0	0	0	0	0	×		×
, , ,	Random	×	×	× 0 *1	×	×			
T (set value sub 1)	Batch Random	×	×	×	O ×	O ×	×		×
T (set value sub 2)	Batch Random	×	×	×	×	O ×	×		×
T (set value sub 3)	Batch Random	×	×	×	×	O ×	×		×

^{*1 :} A2ACPU(-S1) cannot be accessed.

a

_		1							1
		 	VO 13F1	Acc	cess des	tination	1	0001	1
Device	Device		A0J2H A1S(-S1) A1SH A1SJ(-S3) A1SJH(-S8) A2C(J) A2N(-S1) A2S(-S1) A2SH(-S1)	A2A(-S1) A2U(-S1) A2AS(-S1/-S30) A2USH-S1 Q02(H)-A Q06H-A	A3N A3A A3U	A4U	Q2A(-S1) Q3A Q4A Q4AR Q2AS(-S1) Q2ASH(-S1)	Q00J Q00 Q01 Q02(H) Q06H Q12H Q25H Q12PH Q25PH	Personal computer
C (a at valva main)	Batch	0	0	0	0	0			
C (set value main)	Random	×	×	×	X	×	×		×
	Batch			0 *1	0	0			
C (set value sub 1)	Random	×	×	×	×	×	×		×
	Batch				,	0			
C (set value sub 2)	Random	×	×	×	×	×	×		×
	Batch					Ô			
C (set value sub 3)	Random	×	×	×	×	×	×		×
	Batch								
Α	Random		0	0	0	0	×		×
Z	Batch	0	0	0	0	0	0		×
	Random			<u> </u>				U	
V (index register)	Batch Random	0	0	0	0	0	×		×
R (file register)	Batch Random	×	0	0	0	0	O * 2		×
ER	Batch						2		
(extended file resister)	Random	×	0	0			O * 2		×
В	Batch Random		0	0	0	0	0		×
W	Batch Random	0	0	0	0	0	0		×
Q/QnA link special	Batch								
relay (within Q/QnACPU)	Random	×	×	×	×	×	0		×
Retentive timer	Batch	×	×	×	×	×	0		- ×
(contact)	Random						×		
Retentive timer (coil)	Batch Random	×	×	×	×	×			×
Q/QnA link special register	Batch	×	×	×	×	×	0		×
(within Q/QnACPU) Q/QnA edge relay	Random Batch		. ,	. ,					
(within Q/QnACPU)	Random	×	×	×	×	×	0		×
Host random-access	Batch	×	×	×	×	×	×		×
buffer Detentive times	Random								
Retentive timer (present value)	Batch Random	×	×	×	×	×	0		×
Host link register (for transmission)	Batch Random	×	×	×	×	×	×	×	
Host link register	Batch	×	×	×	×	×	×		×
(for reception) Q/QnA SEND function	Random Batch						0		0
(Arrival	Random	×	×	×	×	×	×		×
acknowledgment)	. tariaoini				1	1	1		

^{*1 :} A2ACPU(-S1) cannot be accessed.

^{*2:} No access is allowed in the case of the Q00JCPU.

				Acc	cess des	tination			
Device	Device		A0J2H A1S(-S1) A1SH A1SJ(-S3) A1SJH(-S8) A2C(J) A2N(-S1) A2S(-S1) A2SH(-S1)	A2A(-S1) A2U(-S1) A2AS(-S1/-S30) A2USH-S1 Q02(H)-A Q06H-A	A3N A3A A3U	A4U	Q2A(-S1) Q3A Q4A Q4AR Q2AS(-S1) Q2ASH(-S1)	Q00J Q00 Q01 Q02(H) Q06H Q12H Q25H Q12PH Q25PH	Personal computer
Q/QnA SEND function	Batch						0		0
(Arrival acknowledgment)	Random	×	×	×	×	×	×		×
Direct link input	Batch Random	×	×	×	×	×	0		×
Direct link output	Batch Random	×	×	×	×	×	0		×
Direct link relay	Batch Random	×	×	×	×	×	0		×
Direct link register	Batch Random	×	×	×	×	×	0		×
Direct link special relay (network module side)	Batch Random	×	×	×	×	×	0		×
Direct link special register (network module side)	Batch Random	×	×	×	×	×	0		×
Special direct buffer register	Batch Random	×	×	×	×	×	O ×		×
EM	Batch Random	×	×	×	×	×	×		O * 3
ED	Batch Random	×	×	×	×	×	×		O *3

^{*3:} Accessible only when the operating system is Microsoft® Windows NT® Workstation Operating System Version 4.0 and MX Links (later than SW2D5F-CSKP-E) is operating.

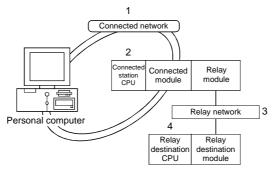
9.2 Accessible Range

The following describes the ranges that can be accessed during MELSECNET/H board communication.

POINT

This section explains the accessible range when using the MELSEC data link library. See "GX Developer Operating Manual" for the accessible range when using GX Developer.

(1) Configuration



(2) Accessibility table

The following table shows the accessibility. All host board and connected station CPU can be accessed.

Relay destination CPU shows the accessibility by \bigcirc (accessible) or \times (not accessible).

				4. Relay des	tination CPU	
Connected network	2. Connected station CPU	3. Relay network	QCPU (Q mode)	QCPU (A mode)	QnACPU	ACPU
		MELSECNET/H	O *1	×	×	×
		MELSECNET/10	0 *1	0	0	0
MELSECNET/H	QCPU	MELSECNET (II)	×	×	×	×
	(Q mode)	Ethernet	×	×	×	×
		Computer link	×	×	×	×
		CC-Link	×	×	×	×
		MELSECNET/H	0 *1	×	×	×
		MELSECNET/10	0 * 1	0	0	0
	QCPU	MELSECNET (II)	×	×	×	×
	(Q mode)	Ethernet	×	×	×	×
		Computer link	×	×	X	×
		CC-Link	×	×	×	×
		MELSECNET/H	×	×	×	×
		MELSECNET/10	0	0	0	0
MELSECNET/10	QnACPU	MELSECNET (II)	×	×	×	×
	QIIACFO	Ethernet	×	×	×	×
		Computer link	×	×	×	×
		CC-Link	×	×	×	×
		MELSECNET/H	×	×	×	×
		MELSECNET/10	0	0	0	0
	QCPU (A mode)	MELSECNET (II)	×	×	×	×
	ACPU	Ethernet	×	×	×	×
		Computer link	×	×	×	×
		CC-Link	×	×	×	×

 $\ensuremath{\circ}$: Accessible, \times : Not accessible

^{*1:} No access is allowed if the connected station's CPU is the Q00J/Q00/Q01CPU.

10 MELSEC DATA LINK LIBRARY

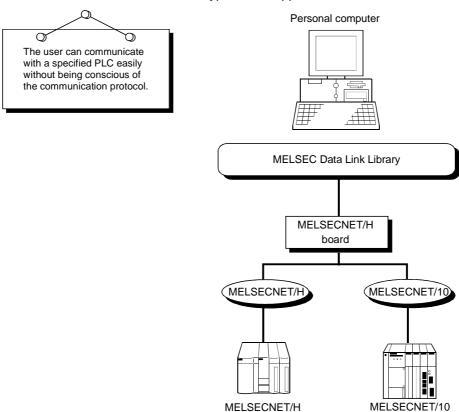
This chapter describes the functional overview offered by the library.

REMARK

The screens of Windows® 95 Operating System are used in the explanation. Please note that these screens are slightly different from other Operating systems.

10.1 Overview of the MELSEC Data Link Library

These functions are used when creating a user program that communicates with a PLC CPU. With the functions, the user can perform communication without being conscious of the hardware type on the opposite side or the communication protocol.



network module

network module

10

10.2 Function List

The following table lists the MELSEC Data Link Library that is provided with the MELSECNET/H board.

Function name	Description
mdOpen	Opens a communication line.
mdClose	Closes a communication line.
mdSend	Performs batch write of devices.
mdReceive	Performs batch read of devices.
mdRandW	Writes devices randomly.
mdRandR	Reads devices randomly.
mdDevSet	Sets a bit device.
mdDevRst	Resets a bit device.
mdTypeRead	Reads the type of PLC CPU.
mdControl	Remote RUN/STOP/PAUSE.
mdlnit	Refreshes the PLC device address.
mdBdRst	Resets the board itself.
mdBdModSet	Sets the mode of the board itself.
mdBdModRead	Reads the mode of the board itself.
mdBdLedRead	Reads the LED information of the board itself.
mdBdSwRead	Reads the switch status of the board itself.
mdBdVerRead	Reads the version information of the board itself.
mdSend * 1	Sends data (SEND function).
mdReceive * 1	Receives data (RECV function).

*1: Q/QnA dedicated instruction

POINT

See the Help for MELSEC Data Link Function for the details of the functions.

10 - 2

10

10.3 Settings for Using Functions

This section describes the setting operation in order to use functions.

POINT

If Windows® 2000 Professional or Windows® XP Professional is used, Microsoft® Visual Basic® 5.0 and Microsoft® Visual C++® 5.0 cannot be used.

Please use Microsoft® Visual Basic® 6.0 and Microsoft® Visual C++® 6.0.

10.3.1 When using Visual Basic® 5.0 and Visual Basic® 6.0

The following describes the setting operation when using Visual Basic® 5.0 and Visual Basic® 6.0.

- 1. Start Visual Basic® 5.0 or Visual Basic® 6.0 and select [Project] [Add standard module] menu.
- Select the "Existing files" tab and select "MDFUNC.BAS."
 "MDFUNC.BAS" has been saved in the following directory during installation:
 <User-specified folder> <COMMON> <INCLUDE>

10.3.2 When using Visual C++® 5.0 and Visual C++® 6.0

The following describes the setting operation when using Visual C++ $^{\circ}$ 5.0 and Visual C++ $^{\circ}$ 6.0.

(1) When setting an include file

- 1. Start Visual C++® 5.0 or Visual C++® 6.0 and select [Tool] [Option] menu.
- 2. Select the "Directory" tab and set the directory type to "Include files."
- 3. Double-click the item to be set and reference the folder containing the include file

MDFUNC.H has been saved in the following directory during installation: <user-specified folder> - <COMMON> - <INCLUDE>

4. Add "#include<mdfunc.h>" at the beginning of your program.

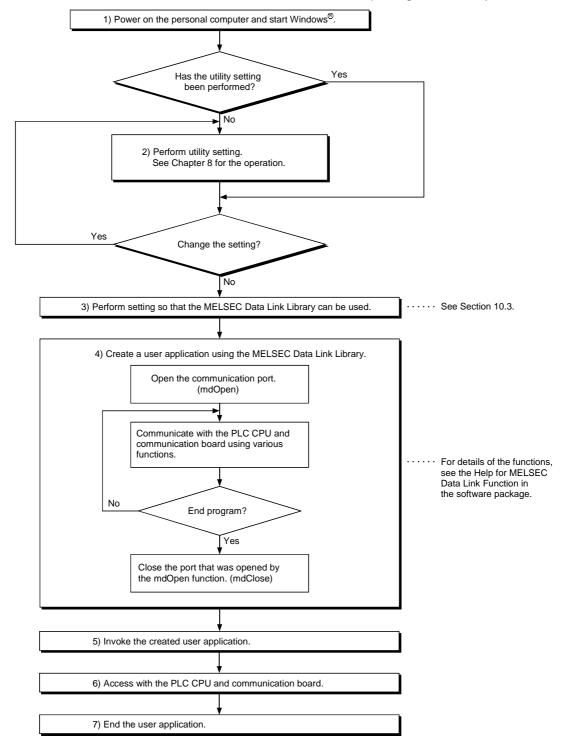
(2) When setting a library file

- 1. Start Visual C++® 5.0 or Visual C++® 6.0 and select [Tool] [Option] menu.
- Select the "Directory" tab, set "Directory to be displayed" to "Library file," and reference the folder containing the library file, as in step (1) above. "MDFUNC32.LIB" is stored in <User-specified folder>-<COMMON>-<LIB> during installation.
- 3. Open the workspace to create and select [Project] [Set] menu.
- 4. Select the "Link" tab, set "General" as the category, then type "mdfunc32.lib" in the object/library module field.

10.4 Procedure for Programming

The following describes the procedure for programming using the MELSEC Data Link Library.

In this section, it is assumed that the software package has already been installed.



- (2) Cautions when using the MELSEC Data Link Library.
 - (a) Cautions when programming
 - Perform the processing for opening and closing a communication function (mdOpen, mdClose) only once at the beginning and end of a program. Repeating opening and closing of a communication line for each transaction will degrade the communication performance.
 - 2) When accessing the PLC CPU and network board again with the user created application program, they can be accessed by performing steps 5) to 7) only.
 - When a function is first executed by adding a corresponding device, this acquires PLC information in detail.
 For that reason, the initial function execution time becomes long.
 - 4) When accessing multiple remote stations simultaneously from the same PC using the MNETH utility, Device Monitor utility, user application program or Mitsubishi's software package (such as MX Links), limit the number of stations to be accessed to eight or less. If nine or more remote stations are accessed simultaneously, communication performance may deteriorate.
 - 5) When creating a user application program for debugging using Visual C++® 6.0, do not define the buffer to be used by mdReceive in static.
 - (b) Cautions when accessing a master board device and another station's PLC device

It is necessary to establish an interlock through a link state between the host and the other station. Data become valid only in the case where the conditions shown below are established.

<In the case of MELSECNET/H and MELSECNET/10>

- Access to a cyclic device (master board X, Y, B, W)
 Writing data to and reading them from the host cyclic device is valid
 only if the host's handshaking status (SB47) and the host's cyclic
 status (SB49) bit goes On (normal communications) and the host's
 module status (SB20) goes Off (Normal). However, even if the above
 conditions are not established, writing and reading processing to the
 MELSECNET/H board ends normally.
- Other station transient access (remote operation of and device access to other station's PLC CPU.)
 In addition to a device which checks the cyclic device's access, access is possible if the accessing station's handshake status (the bits pertaining to the opposite station being communicated with when SW70 to 73 are read by the host) and the cyclic status (the bits pertaining to the opposite station being communicated with when SW74 to 77 are read by the host) are Off (normal communications).

10.5 Channel

The following is the channel used by the MELSEC data-link library:

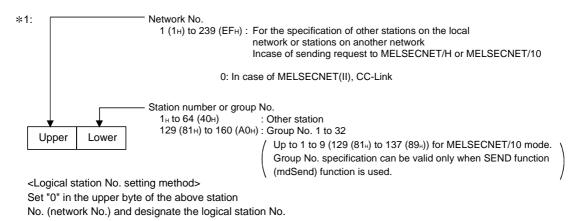
Number	Channel name	Description
51 to 54	MELSECNET/10, /H (1 slot to 4 slot)	Used when communication is performed via the MELSECNET/H board and
		MELSECNET/10 board. The channels are set from 51 in order of the PCI
		slot number of the personal computer.

^{*1:} Check the channel No. in the "Board List" screen in the MNETH utility. See Appendix 1, "Channel No. Assignment Method" concerning the method used to assign the channel No.

10.6 Station Number Settings

The following lists the station numbers set via functions.

Communication	Station number specification
MELSECNET/H	Host: 255(0xFF) Other station: *1
MELSECNET/10	Control station: 0
MELSECINE 1/10	Designation of all station: 0xF0



in the lower byte (station No.). The logical station

No. designation range is 65 (41H) to 239 (EFH).

10 - 6 10 - 6

10.7 Device Types

Any code number or device name can be specified for functions as the device type.

Device type		/pe	Device	
Code specification				
Decimal	Hexadecimal	Device name specification		
1	1н	DevX	X	
2	2н	DevY	Υ	
3	3н	DevL	L	
4	4н	DevM	M	
5	5н	DevSM	Special M (SM), SB	
			(link special B for MELSECNET/10, MELSECNET/H and CC-Link)	
6	6н	DevF	F	
7	7н	DevTT	T (contact)	
8	8н	DevTC	T (coil)	
9	9н	DevCT	C (contact)	
10	Ан	DevCC	C (coil)	
11	Вн	DevTN	T (present value)	
12	Сн	DevCN	C (present value)	
13	Dн	DevD	D	
14	Ен	DevSD	Special D (SD), SW	
			(link special W for MELSECNET/10, MELSECNET/H and CC-Link)	
15	Fн	DevTM	T (set value main)	
16	10н	DevTS	T (set value sub 1)	
16002	3Е82н	DevTS2	T (set value sub 2)	
16003	3E83H	DevTS3	T (set value sub 3)	
17	11н	DevCM	C (set value main)	
18	12н	DevCS	C (set value sub 1)	
18002	4652н	DevCS2	C (set value sub 2)	
18003	4653н	DevCS3	C (set value sub 3)	
19	13н	DevA	A	
20	14н	DevZ	Z	
21	15н	DevV	V (index register)	
22	16⊦	DevR	R (file register)	
22000 to 22256	55F0н to 56F0н	DevER0 to DevER256	ER (extension file register)	
23	17н	DevB	В	
24	18н	DevW	W	
25	19н	DevQSB	Q/QnA link special relay (within the Q/QnACPU)	
26	1Ан	DevSTT	Retentive timer (contact)	
27	1Вн	DevSTC	Retentive timer (coil)	
28	1Сн	DevQSW	Q/QnA link special register (within the Q/QnACPU)	
30	1Ен	DevQV	Q/QnA edge relay (within the Q/QnACPU)	

Device type		уре		
Code specification		Davidson and a life of an	Device	
Decimal	Hexadecimal	Device name specification		
35	23н	DevSTN	Retentive timer (present value)	
101	65н	DevMAIL	Q/QnA SEND function (arrival acknowledgment) and RECV function	
102	66н	DevMAILNC	Q/QnA SEND function (no arrival acknowledgment)	
1001 to 1255	3E9н to 4E7н	DevLX1 to DevLX255	Direct link input	
2001 to 2255	7D1н to 8CFн	DevLY1 to DevLY255	Direct link output	
23001 to 23255	59D9н to 5AD7н	DevLB1 to DevLB255	Direct link relay	
24001 to 24255	5DC1 _H to 5EBF _H	DevLW1 to DevLW255	Direct link register	
25001 to 25255	61А9н to 62А7н	DevLSB1 to DevLSB255	Direct link special relay (network module side)	
28001 to 28255	6D61н to 6E5Fн	DevLSW1 to DevLSW255	Direct link special register (network module side)	
29000 to 29255	7148н to 7247н	DevSPG0 to DevSPG255	Special direct buffer register	
31000 to 31255	7918н to 7А17н	DevEM0 to DevEM255	EM (shared device) * 1	
32000 to 32255	7D00н to 7DFFн	DevED0 to DevED255	ED (shared device) * 1	

^{*1 :} Only the personal computers of other stations can be accessed (only when the MX Links (later than SW2D5F-CSKP-E) is running on Windows NT® Workstation 4.0 on the opposite side).

10.8 Sample Programs

When SW0DNC-MNETH-B is installed in a PC, sample programs are registered in <User-specified folder>-<Mneth>-<Samples>.

Sample programs are provided as a reference for creating user application programs. The user is solely responsible for the use of the sample programs provided.

(1) Vb folder (for Visual Basic®)

- (a) Demo folderContains a sample program for reading D0.
- (b) Mtest folderContains a sample program for the general MELSEC data link library.

(2) Vc folder (for Visual C++®)

(a) Mtest folder

Filer name	Contents		
Mtest1.c	Contains a sample program for the general MELSEC data link library.		
Netsmp1.c	Contains a sample program for reading device D of station number 1.		

11 PROGRAMMING

11.1 Cautions in Programming

This section explains concerning cautions in the case that a program is created using data on a network.

11.1.1 Interlock related signals

Show a list of the interlock signal devices used in the user program.

For other hosts and other stations, see the "Q corresponding MELSECNET/H Network System Reference Manual (PLC to PLC Network) about the operating status and setting status, etc.

Also, if more than one MELSECNET/H board is installed in the same personal computer, SB/SW is refreshed in the personal computer side devices in the range 0H to 1FFH for each MELSECNET/H board.

POINT

In the Q series, the link special relay (SB) and link special register (SW) are used by the intelligent function module as a whole.

For that reason, if SB/SW are used in a program, control them correctly so that there is no overlapping use, etc.

(1) Assignment of link special relays (SB) and link special registers (SW) when multiple boards are installed

		5	Device status	
Device	Name	Description	Off (0)	On (1)
SB20	Module status	Indicates the operation status of the network module and MELSECNET/H Board and the communication status with the CPU.	Normal	Abnormal
SB47	Baton pass status of host	Indicates the baton pass status of the host. It is in a status that the cyclic transmission and transient transmission can be performed when it is normal.	Normal (Data link enabled)	Abnormal (Host disconnected)
SB49	Data link status of host	Indicates the data link status (cyclic transmission status) of the host.	Data link being executed (Executing cyclic transmission)	Data link being stopped (Set after refresh completion)
SB70	Baton pass status of each station	Indicates the baton pass status of each station (including the host). Reserved stations and stations having numbers higher than the maximum station number are not included. This device turns off when SW70 to 73 are all "0".	All stations normal	One or more stations are abnormal
SB74	Data link status of each station	Indicates the data link (cyclic transmission) status of each station (including the host). Reserved stations and stations having numbers higher than the maximum stations number are not included. This device turns off when SW74 to 77 are all "0".	All stations executing data link (All stations executing cyclic transmission)	One or more stations are not executing data link
SW70 to 73	Baton pass status of each station (per station number)	Stores the baton pass status of each station (including the host). b15 b14 b13 b12 to b4 b3 b2 b1 b0	Baton pass normal (including reserved stations during online and stations having numbers higher than the maximum station number)	Baton pass abnormal (including reserved stations during offline test and stations having numbers higher than the maximum station number)
SW74 to 77	Data link status of each station (per station number)	Stores the data link (cyclic transmission) status of each station. (Including the host) b15 b14 b13 b12 to b4 b3 b2 b1 b0 SW74 16 15 14 13 to 5 4 3 2 1 SW75 32 31 30 29 to 21 20 19 18 17 SW76 48 47 46 45 to 37 36 35 34 33 SW77 64 63 62 61 to 53 52 51 50 49 Numbers 1 to 64 in the table denote station numbers.	Executing data link (including reserved stations and stations having numbers higher than the maximum station number)	Station not executing data link

11.2 Cyclic Transmission

The link scan of the MELSECNET/H and the PLC of the user program operate asynchronously.

Depending on the timing of the user program execution, link data with data types of more than 32 bits (two words), such as the ones below, may be broken up into new and old data, which may coexist in 16 bit (one word) units.

- Floating point data
- Current values of positioning module, command speed.

The MELSECNET/H provides the following functions for making handling of the link data easy.

- 32 bit data guarantee (See "Q corresponding MELSECNET/H network system reference manual (PLC to PLC network)" for details.)
- Block guarantee of cyclic data per station (See Section 11.2.1 Block guarantee of cyclic data per station for details)

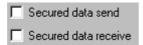
11.2.1 Block guarantee of cyclic data per station

By enabling the parameter settings shown below, handshaking for the cyclic data is performed between the PC and the MELSECNET/H board and then the network is refreshed.

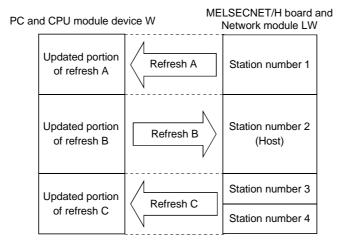
Through the cyclic data handshaking, the link data block is guaranteed for each station (to prevent link data separation per station $*^{1}$).

As shown below, set the send and receive parameters as needed.

The MELSECNET/H board can be set in the MNETH utility's "Common Parameter Setting (Supplementary Settings)" screen only when it is the control station. (It is not necessary to set it if the board is a normal station.)



By selecting both [Secured data send] and [Secured data receive], an interlock for the link data between the stations to be set becomes unnecessary.



POINT

The block guarantee per station applies only to the refresh processing. To use the direct access of the link devices, the programs should be interlocked.

*1: The <u>separation prevention</u> refers to a prevention of link data with double word precision (32 bits), such as the current value of the positioning module, from being separated into new data and old data in one word (16 bits) units due to the cyclic transmission timing.

11.3 Link Special Relays (SB)/Registers (SW)

The data linking information is stored in the link special relays (SB)/registers (SW). They can be used by the user program, or used for investigating faulty areas and the causes of errors by monitoring them.

The following table shows which SB and SW can be used to check which information. For more details, see "Q corresponding MELSECNET/H network system reference manual (PLC to PLC network).

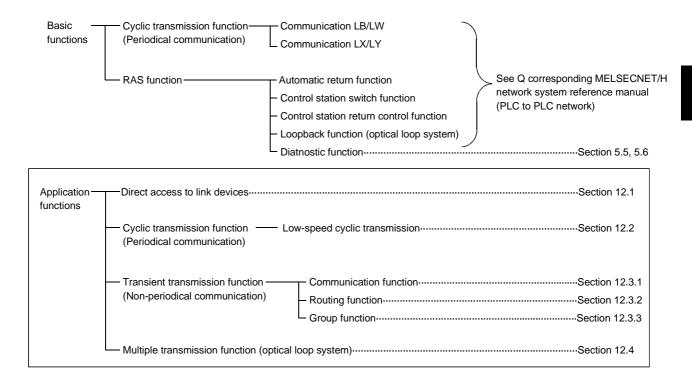
(1) To know the information about the host

Item	SB	SW
CPU and personal computer status of the host	SB004Ан SB004Вн	SW004BH
Operation status of the MELSECNET/H Board and network module	SB0020н	SW0020h
Setting status of the MELSECNET/H Board and	SB0040н to 44н	SW0040 _H to 46 _H
network module	SB0058H to 69H	SW0054H to 68H
Running status of the MELSECNET/H Board and network module	SB0047н to 49н	SW0047н to 4Aн

(2) To know information about the entire network

Item	SB	SW
CPU and personal computer status of the host	SB0080H	SW0080h to 83h
(normal/abnormal)	SB0088H	SW0088H to 8BH
CPU and personal computer operation status of the host (RUN/STOP)	SB0084H	SW0084н to 87н
Cyclic transmission status of each station	SB0074H	SW0074H to 77H
Link scan, communication mode	SB0068н SB0069н	SW0068н to 6Dн
Setting information of the network	SB0054H to 69H	SW0054H to 68H
Running information of the network	SB0070 _H	SW0070 _H to 73 _H
Line status	SB0090н to 9Aн	SW0090н to 9Fн

12 APPLICATION FUNCTIONS



12.1 Direct Access to the Link Devices

The link devices (LB, LW, LX, LY, SB, SW) of the MELSECNET/H board network module can be directly read or written from the use program by the driver setting. By directly accessing the link devices, the link refresh time and the transmission delay time can be shortened.

However, in direct access, since block guarantees are not applicable in station units, it is necessary to establish an interlock.

For the direct access setting, set it in the "Driver" in the MNETH utility.

POINT

The direct access of the link devices LX/LY is limited to the communication with the block I/O master station set with the common parameters. By limiting the communication, data cannot be shared among multiple stations, such as link device LB/LW, but 1:1 communication between predefined stations is allowed.

12.2 Low-Speed Cyclic Transmission Function

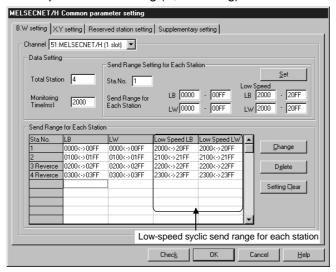
POINT

The Q00J/Q00/Q01CPU does not support the low-speed cyclic transmission function. Therefore, the low-speed cyclic transmission function cannot be used in MELSECNET/H that connects the Q00J/Q00/Q01CPU.

The low-speed cyclic transmission function is convenient when sending data that does not require high-speed transfer to other stations in a batch mode using the cyclic devices (LB/LW).

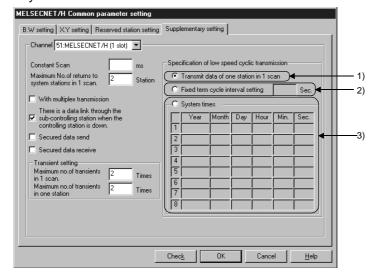
A station can transmit data only once in a single link scan. Simultaneous data transmission from multiple stations requires more scan time than the following: Low-speed cyclic link scan time = normal link scan time \times (number of send stations + 1)

In the low-speed cyclic transmission, send range for each station is set with the "Common parameters setting (B, W setting)" screen of the MNETH utility.



The sending to other stations can be activated by three methods: 1): "Transmit data of one station in 1 scan", 2): "Fixed term cycle interval setting", and 3):" System times" and those three method are set in the "Common parameter setting" screen (bus setting).

Only one of them can be selected.

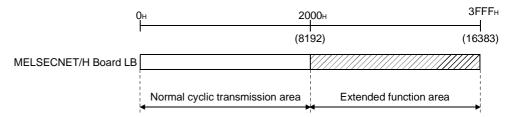


12.2.1 Send range settings

Each station's send range of link devices (low-speed LB, low-speed LW) is assigned to the extended area (2000 to 3FFF) in 16-point units for LB (start : \Box \Box 0 to end \Box \Box \Box F) and in one-point units for LW.

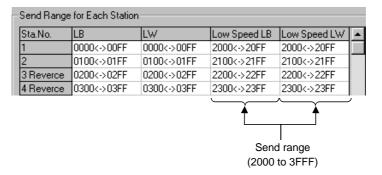
Each station's send range can also be assigned using a random station number assignment sequence.

(1) Device range



(2) Screen settings

This shows in the case where 768 points of the transmission range for each station is assigned to (Low Speed LB, Low Speed LW) in the "Common parameter setting (B, W Setting)" screen in the MNETH utility.



POINT

- (1) The total of the send ranges per station must not exceed 2000 bytes in the low-speed cyclic transmission. (The send range for the normal cyclic transmission is not included.)
- (2) The LX and LY cannot be set as low-speed cyclic devices.
- (3) Low-speed syclic transmission function cannot be used during MELSECNET/10 mode.

12.2.2 Send timing

The low-speed cyclic transmission is executed separately from the normal cyclic transmission.

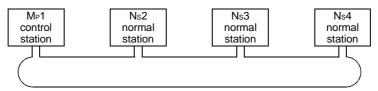
The number of sending stations is changed with the parameter setting.

When "Transmission of data for one station per link scan" is set, data is sent once per link cycle of low-speed cyclic at the rate of maximum one station per link scan.

When "Periodical cycle interval" or "System timer setting" is set, the sending is executed once per link cycle at the rate of the number of stations set by the "Transient settings" – "Maximum number of transients per scan." (For details on the "Transient settings," see Section 12.3.1.)

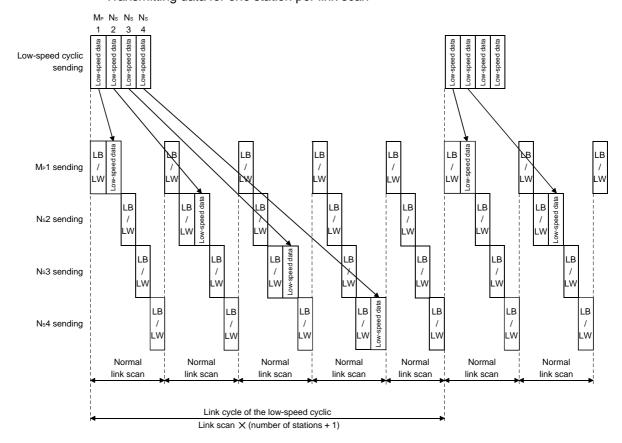
For example, when "Maximum number of transients per scan = 2 times," the sending is executed once per link cycle at the rate of two stations per link scan.

The following diagram shows an example of the send timing when four stations execute the low-speed cyclic transmission by selecting "Sending of data for one station per link scan" with a parameter.



[Example]

Transmitting data for one station per link scan



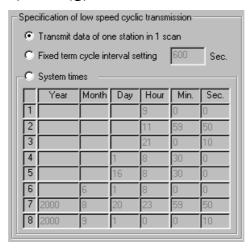
12.2.3 Startup

(1) Sending of data for one station per link scan (default)

The low-speed cyclic data for a maximum of one station is sent in one link scan of the normal cyclic transmission.

[Setting method]

1) Click ((a)) "Transmit data of one station in 1 scan" to select.



POINT

The fastest link scan time in the low-speed cyclic transmission can be calculated by the following equation:

 $LSL = LS \times number of stations + LS$

= LS \times (number of stations + 1)

LSL : The fastest link scan time in the low-speed cyclic transmission

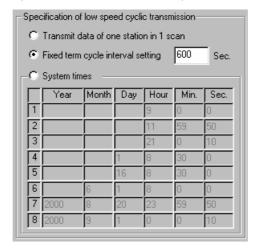
LS: Normal link scan time

(2) Fixed term cycle interval setting

The low-speed cyclic data is sent in the link cycle of the designated time frequency.

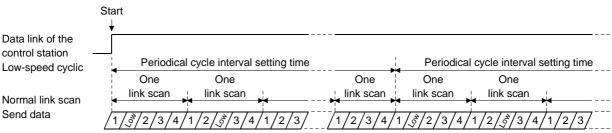
Valid setting frequency: 1 to 65535 s (18 h, 12 min and 15 s) [Setting method]

- 1) Click (ⓐ)"Fixed term cycle interval setting" to select.
- 2) Set the time in seconds (the screen shows a value of 600).



[Example]

When "Maximum number of transients per scan" is set to 1 with "Transient settings".



(3) System timer interval

The low-speed cyclic data is sent in the link cycle at the designated time. By omitting year, month, and date, the low-speed cycle transmission can be activated yearly (or monthly, or daily). Hour, minute and second cannot be omitted.

Setting points: 1 to 8 points

[Setting method]

1) Click ((())"System times" to select.

2) Set year, month, date, hour, minute and second to the designated time. In the following screen example:

Points 1 to 3 : By omitting year, month and date, data is sent every

day at the designated time.

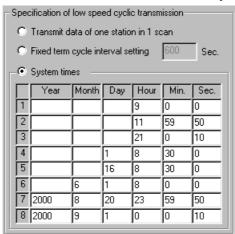
Points 4 and 5: By omitting year and month, data is sent at the

designated time monthly.

Point 6 : By omitting the year, data is sent at the designated

time every year.

Points 7 and 8: Data is sent only once at the designated time.



POINT

- (1) The system timer operates based on the host's clock. If used without matching the clocks on the sending station and receiving station, there may be a time gap between the stations.
- (2) When handling multiple data <u>without the block guarantee per station function</u>, new and old data may coexist.

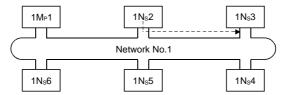
Apply interlocks to prevent the coexistense.

12.3 Transient Transmission Function

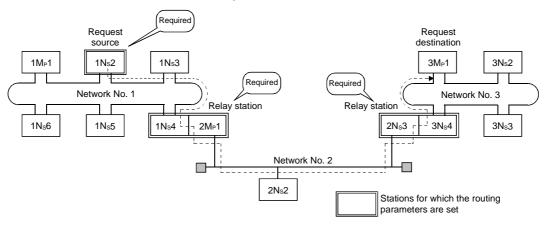
The transient transmission function performs data communication only when it is requested between stations.

In the MELSECNET/H, data communication can be performed with other stations having the same network number (the same network as where the host is connected), as well as with stations having other network numbers.

1) Transient transmission function to a station on the same network



Transient transmission to stations on other networks (routing function)
 In this case, the routing parameters must be set for the request source and relay stations.



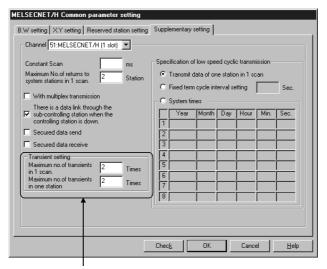
12.3.1 Communication function

(1) Parameter settings

Set the execution conditions for the transient transmission with the parameters listed below.

In the default settings, both the number of transients that one network can execute in one link scan ("Maximum no. of transients in 1 scan") and the number of transients that one station can execute in one link scan ("Maximum no. of transients in one station") are set to 2 times. Change the number of transients that can be executed in a link scan as necessary (see Points below).

Setting value Setting item	Valid setting times	Default setting
Maximum no. of transients in 1 scan	1 to 255 times	Twice
Maximum no. of transients in one station	1 to 10 times	Twice



Transient setting

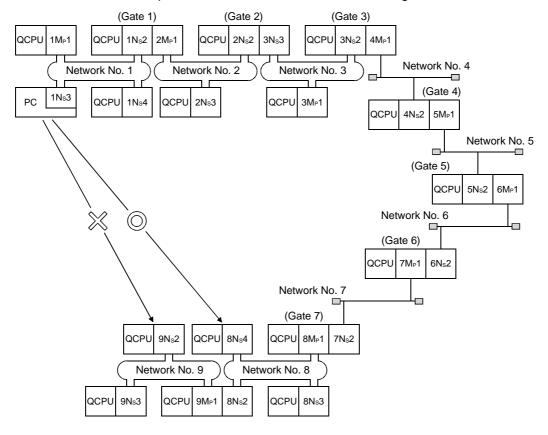
POINT

- (1) By increasing the number of transients, multiple transient instructions can be executed at the same time (in one link scan).
- (2) If the number of transients is increased and the transient request was issued in each station at the same time, the link scan time becomes temporarily longer and the cyclic transmission is also affected. Do no set unnecessarily large values.
- (3) When the transient transmission and the low-speed cyclic transmission are used at the same time, these transient setting parameters limit the total number of transient and low-speed cyclic transmissions.

(2) Transient transmission range

In a multiple network system of the MELSECNET/H, communication can be performed with stations in a maximum of eight networks by setting the routing parameters described in Section 12.3.2.

The following diagram illustrates the transient transmission range using an example where the destinations are limited to eight networks.

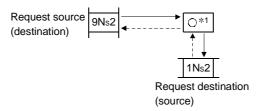


[Transient transmission valid range]

The following table shows the valid ranges of send/receive by transient transmission using the network configuration on the previous page.

In the table below, ©, \bigcirc , and \times indicate whether or not the transient transmission between the request source (destination) listed in the column at the left and the request destination (source) listed in the row at the bottom is possible.

For example, the valid range between 9Ns2 of network number 9 and 1Ns2 of network number 1 is indicated by $\bigcirc *1$ (communication is possible by designating a network module that is close to the request source of the same PLC).



- ©: Possible
- O: Possible by setting the routing parameter
- ×: Not possible
- *1: Communication is possible by designating a network module that is close to the request source of the same PLC

	1M _P 1	Host																	
Natural Na 4	1Ns2	0	Host																
Network No. 1	1Ns3	0	0	Host															
	1Ns4	0	0	0	Host														
	2M _P 1	0	Host	0	0	Host													
Network No. 2	2Ns2	0	⊚*¹	0	0	0	Host												
	2Ns3	0	©*1	0	0	0	0	Host											
	3M _P 1	0	0	0	0	0	©*1	0	Host										
Network No. 3	3Ns2	0	0	0	0	0	©*1	0	0	Host									
	3Ns3	0	0	0	0	0	Host	0	0	0	Host								
	•		•	•	•	•	•	• • • • • •	• • • • • •	•	•								
	8M _P 1	0	0	0	0	0	0	0	0	0	0	••••	Host						
Network No. 8	8Ns2	0	0	0	0	0	0	0	0	0	0	••••	0	Host					
Network No. 8	8Ns3	0	0	0	0	0	0	0	0	0	0	••••	0	0	Host				
	8Ns4	0	0	0	0	0	0	0	0	0	0	••••	0	0	0	Host			
	9M _P 1	0	0	0	0	0	0	0	0	0	0	••••	0	Host	0	0	Host		
Network No. 9	9Ns2	×	0*1		×	0	0	0	0	0	0	••••	0	©*1	0	0	0	Host	
	9Ns3	×	O*1	×	×	0	0	0	0	0	0	••••	0	©*1	0	0	0	0	Host
Request source		1M _P 1	1Ns2	1Ns3	1Ns4	2M _P 1	2Ns2	2Ns3	3M _P 1	3Ns2	3Ns3	••••	8M _P 1	8Ns2	8Ns3	8Ns4	9M _P 1	9Ns2	9Ns3
(destination) R destination (s	equest source)		Net\ No	work o. 1			etwo No. 2			letwo		••••			work o. 8			etwo No. 9	

12 - 11 12 - 11

12.3.2 Routing function

The routing function is used to execute transient transmissions to stations having other network numbers in a multiple network system.

In order to execute the routing function, it is necessary to set the "routing parameters" to associate the network numbers of the request source and the station that will function as a bridge *1 between the networks.

*1: The bridge function refers to sending data via an adjacent network.

POINT

MELSECNET/H board cannot be used as a relay station that function as a bridge. Use the network module for the relay station.

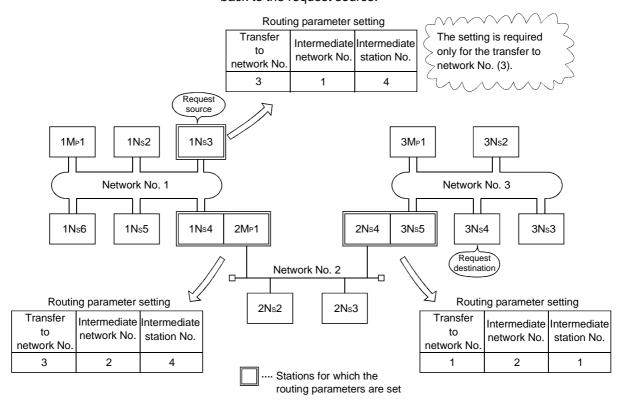
(1) Stations that require routing parameter setting

- (a) The setting is required for both the transient transmission request source and relay stations.
- (b) For the relay stations, two routing settings are required: one from the request source to the request destination, and the other from the request destination back to the request source.
- (c) The setting is not required for the request destination.

In the example shown in the diagram below where the transient transmission is executed from 1Ns3 to 3Ns4, the setting is required for the following three stations:

- Setting for 1Ns3 that requests the transient transmission
 Designate the network number (3) of the Transfer to, the relay station (1Ns4), and the relay network number (1) to the relay station.
- 2) Setting for 1Ns4 that functions as a bridge Designate the network number (3) of the Transfer to, the relay station (2Ns4), and the relay network number (2) to the relay station. It is not necessary to set the return route because it is designated in the setting for 2Ns4.

3) Setting for 2Ns4 that function as a bridge
It is not necessary to set the routing to the Transfer to because the host
is on the same network as the destination transfer (3). However, it is
necessary to set the Transfer from network number (1) as the Transfer
to network number and to designate the relay station (2Mp1) and the
relay network number (2) to the relay station in order to trace a route
back to the request source.



*1: The bridge function refers to sending data via an adjacent network.

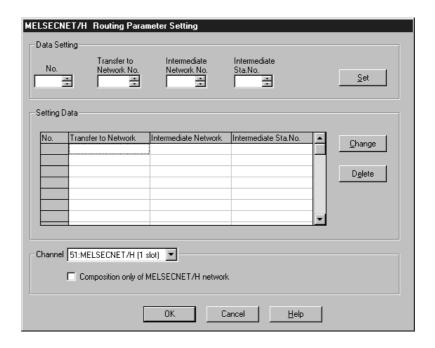
(2) Routing parameter settings

(a) Setting screen

A maximum of 64 "Transfer to Network No." can be set on the "Routing Parameter Setting" of the MNETH utility.

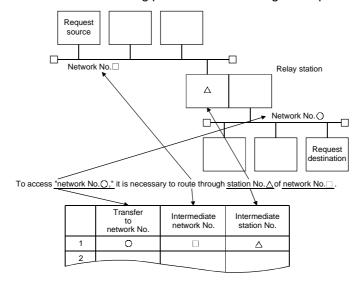
Note that the same Transfer to network number cannot be designated more than once (multiple). Therefore, the host can become the request source or can be accessed to other station through the host with 64 types of different "Transfer to Network No."

Setting item	Valid setting range
Transfer to Network No.	1 to 239
Intermediate Network No.	1 to 239
Intermediate Station No.	1 to 64



(b) Setting method

Set the routing parameters according to the procedure described below.

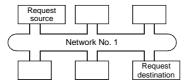


(3) Settings for different network system configurations and setting contents

The stations to set for the transient transmission and the contents of the routing parameters vary depending on the system configuration.

(a) Single network system

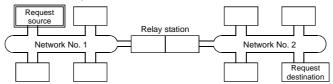
It is not necessary to set the routing parameters for the transient transmission to the same network.



(b) Multiple network system: two networks

Set the routing parameters only for the request source station.

The route for reaching the request destination (network number 2) must be set for the request source station.

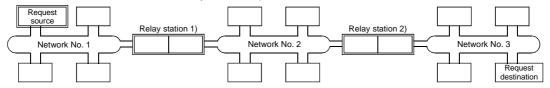


(c) Multiple network system: three networks

Set the routing parameters for the request source and the relay stations. The route for reaching the request destination (network number 3) must be set for the request source.

The route for reaching the request destination (network number 3) must be set for relay station 1).

The route for reaching the request source (network number 1) must be set for relay station 2).

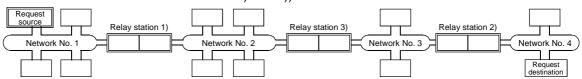


(d) Multiple network system: four networks

Set the routing parameters for the request source station and the relay stations.

The route for reaching the request destination (network number 4) must be set for the request source station.

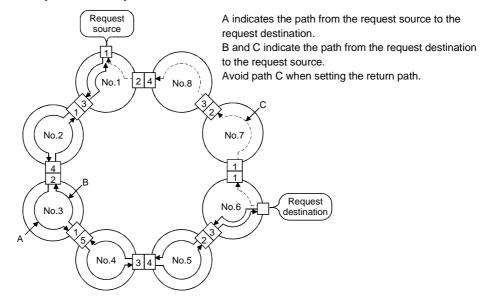
The route for reaching the request destination (network number 4) must be set for relay station 1) (the relay station that is closest to the request source). The route for reaching the request source (network number 1) must be set for relay station 2) (the relay station that is closest to the request destination). The routes for reaching the request destination (network 4) and the request source (network number 1) must be set for relay station 3) (relay station other than 1) and 2)).



POINT

(1) When a network is connected in a loop as shown in the figure below, make sure to set the routing parameters so that the same relay station is routed for both the "route from request source to request designation" and the "route back from request destination to request source."

Do not set the destination and returning paths to circle the entire loop. The first relay station in the return path from the request destination is determined by the relay station in the forward path; thus, data cannot be transferred to a station beyond that relay station and an error occurs.



(2) When data is sent to a remote network by transient transmission using the routing parameters, data is transferred through many networks; thus, the amount of transmission data and the number of transmissions may affect the entire system.

For example, in network No. 2 to 5 in the figure above, the link scan time may become temporarily longer and there may be delays in the transient transmission of the host because of the transient transmissions from other networks

When using the routing parameters, design the transient transmission by considering the entire system.

(3) When multiple network systems are connected with the routing function, the request source can send requests to destinations in up to eight network systems (the maximum number of relay stations is seven stations).

(4) Calculation of transmission delay time

The processing time of the transient transmission instruction to access a station on other network in a multiple network system can be obtained by adding the following transmission delay factors.

(Routing transmission delay time) = (processing time from request source to relay station)

+ (processing time from relay station to request destination)

(a) Processing time from request source to relay station

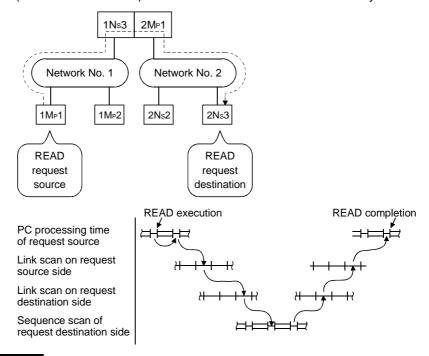
This is the transmission delay time from the request source (the station that executed the instruction) to the relay station that performs the routing. In the following example, it is the time required for the data to be transmitted from station 1Mp1 to station 1Ns3.

See "Q corresponding MELSECNET/H network system reference manual (PLC to PLC network) for the calculation of translation of delay time.

(b) Processing time from relay station to request destination

This is the transmission delay time from the relay station to the request destination (the station accessed with the instruction). In the following example, it is the time required for the data to be transmitted from station 2Mp1 to station 2Ns3.

See "Q corresponding MELSECNET/H network system reference manual (PLC to PLC network) for the calculation of translation of delay time.

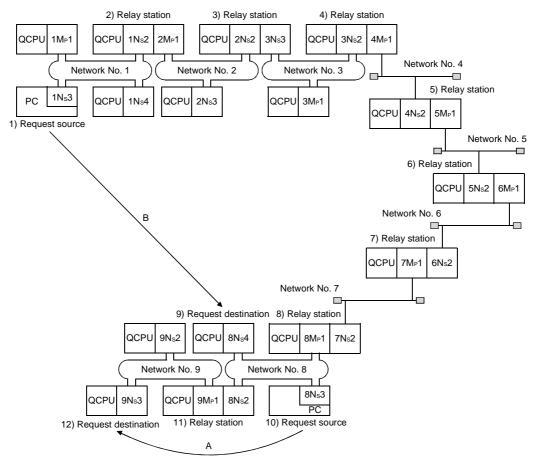


REMARK

When three or more networks are relayed through by means of routing, add the processing time from one relay station to the other relay station to the routing transmission delay time.

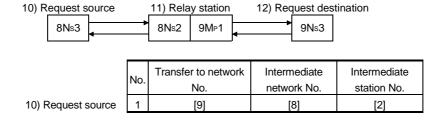
(5) Setting example

The routing parameter setting examples (A and B) are explained using the system configuration explained in Section 12.3.2.



(a) Setting example A

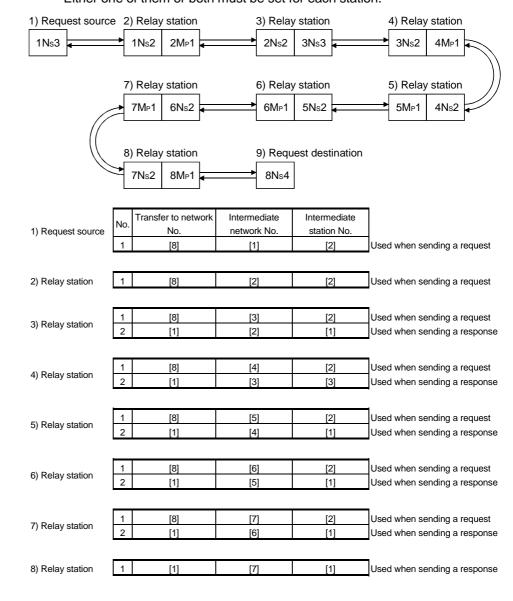
The routing parameter must be set for request source 10).



(b) Setting example B

The routing parameters must be set for the request source1), relay station 2), relay station 3), relay station 4), relay station 5), relay station 6), relay station 7), and relay station 8).

In addition, there are two types of routing parameter settings; one is used when sending data from the request source to the request destination (when sending a request), and the other is used when returning from the request destination to the request source (when sending a response). Either one of them or both must be set for each station.



12.3.3 Group function

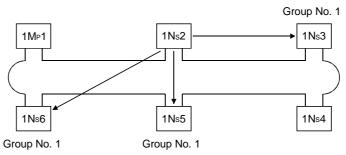
The group function is used to group the target stations of a transient transmission and send data to all of the stations in a group with a single instruction. One network may have a maximum of 32 groups.

By setting a group designation to the target station number in the control data of a dedicated instruction, stations with the matching group number retrieve the transient data.

The disadvantage of this approach is that whether or not the transient transmission is normally completed cannot be verified because the data is transmitted to multiple stations.

(1) Visual representation of the function

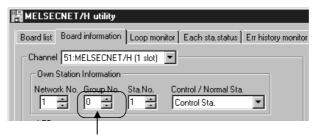
The following figure shows an example of grouping. When a transient transmission is executed by designating group No. 1, all of the three stations, 1Ns3, 1Ns5 and 1Ns6, retrieve the transient data.



(2) Setting method

Set the group number of the MELSECNET/H board using the "Board information" screen of the MNETH utility.

Setting range: 1 to 32 (Default: 0 (no group designation))



Set the desired group number.

(3) Transient transmission instructions that allows group designation Use mdsend to execute the transient transmission instruction in the user program.



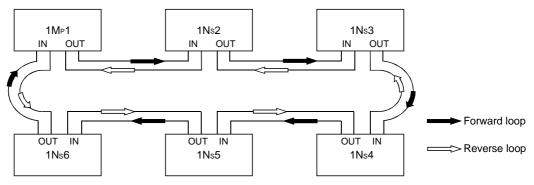
[Precautions when executing the transient transmission by a group function] When a group is designated, the execution of the transient transmission cannot be verified.

When this mode of transient transmission is executed successively, a "no reception buffer space error" (error code: F222) may occur. Design the system thoroughly to allow for a sufficient interval between executions, and make sure to test (debug) to confirm that successive executions can be performed without generating any error.

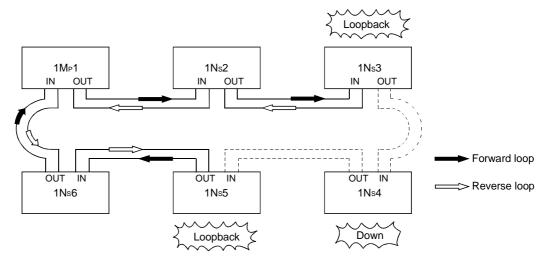
12.4 Multiplex Transmission Function (Optical Loop System)

The multiplex transmission function allows high-speed communications using duplex transmission paths (both the forward and reverse loops) in the optical loop system. In order to execute the multiplex transmission function, setting for the "Supplementary settings" of the common parameters is required. Note that this setting is not allowed unless the total number of link stations is four stations or more.

(1) Using the multiplex transmission function, the high-speed communication is performed using both the forward and reverse loops effectively.



(2) If an error occurs in the transmission path while the multiplex transmission function is used, data linking continues by communicating only using the transmission path on one side of either the forward or reverse loop, or by switching to the communication using loopback. The transmission speed in this case is 10 Mbps or 25 Mbps.



REMARK

The multiplex transmission function is effective only in reducing the link scan time when the number of connected stations is 16 or more and the link devices assigned with common parameters is 2,048 bytes or more. The link scan time will be 1.1 to 1.3 times faster compared to when the multiplex transmission function is not used.

13 ERROR CODE

An error code is returned as the return value when a function is executed. The error definition and corrective action that correspond to each error code are described.

Return value (HEX)	Error definition	Corrective action
0	Normal completion	_
	Driver not started	
1	The driver has not been started.	Correct the error occurred during driver startup.
	The interrupt number/I/O address are overlapping with other board.	Check the other board setting.
	The interrupt harmony of dadicate are eventapping man early board.	Check the operation status of the access station(s)
2	Board response error	and loading condition of the board(s).
	Time out has occurred while waiting for a response to the corrective action.	Retry in an application program.
68	PATH error	rtetty in an application program.
(44 _H)	A path other than the opened line was set.	Specify the number with an open path.
69	Processing code error	Use the supported processing code.
(45н)	An unsupported processing code was issued.	
	Station specification error	
70	The specified station is incorrect.	Correct the specification of the station number in the
(46 _H)	A process that should have been requested to other station was requested to the	application program.
, ,	host. Or, the station number corresponds to the host (0xFF) but the network	
	number is not 0.	
71	No reception data error (during RECV request)	Wait until data is received.
(47 _H)	Data has not been received.	
77	Memory error	Terminate other application(s) currently running.
(4D _H)	Enough memory could not be secured.	Check if the system is operating nornally.
(,		Reboot the system.
78	Time out error during mode setting	Restart after checking that the dual-port memory is not
(4E _H)	Mode setting was attempted but failed due to time out.	overlapping with other board.
(1211)	Thou dotting was attempted but failed due to time out.	MELSECNET/H board fault.
79	S/W setting data error	Check the argument parameter of S/W setting data.
(4F _H)	Incorrect data was found in the argument parameter when setting S/W.	Oneck the argument parameter of 5/77 Setting data.
81	Channel response error at source (When a SEND request is issued)	Retry.
		Check if the system is operating normally.
(51н)	Received an abnormal response to the SEND request.	Reboot the system.
85	Network channel number error (When a RECV request is issued.)	Check the specified channel number when a RECV
(55 _H)	channel number error	request is issued.
100	Accessing host board	
100	An access request was issued to the host board while the host board is being	Retry.
(64н)	accessed.	
101	Routing parameter error	
(65 _H)	The routing parameter is not set.	Correct the routing parameter.
129	Device type error	
(81н)	The specified device type is invalid.	Check the device type.
<u> </u>	Device number error	
130	The specified device number is out of range.	
(82 _H)	When specifying the bit device, the device number is not a multiple of 8 in ACPU	Check the device number.
, ,	and not a multiple of 16 in QnACPU.	
	Device points error	
131	The specified number of points is out of device range.	<u></u>
(83 _H)	When specifying the bit device, the device number is not a multiple of 8 in ACPU	Check the size.
(55)	and not a multiple of 16 in QnACPU.	
	Link parameter error	
	The link parameter is corrupt.	
133	The total number of slave station of the link parameter is 0.	Reset the link parameter.
(85н)	Fixed pattern of the link parameter is corrupt.	min paramoton
	Sum check of the link parameter is corrupt	
136	Random write specification error.	
(88 _H)	The specified value for random write is other than 0 to 2.	Specify the value to 0 to 2 again.
(001)	Reception data length error	Retry.
215	1	Check the cable.
215 (DZ ₁)	The length of reception data or byte length is out of range.	OHECK LIE CADIE.
(D7 _H)	Request data buffer length over	Reduce the request data size.
	The length of request data is out of the request data area.	

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Return value (HEX)	Error definition	Corrective action
224	PLC number request error	Correct the station number.
(ЕОн) 225 (Е1н)	The destination station does not exist. Processing mode error A processing code that cannot be processed by the request destination ACPU was set. (It is checked by the request destination ACPU.)	Check the request destination ACPU and processing code.
227 (ЕЗн)	Other data error Incorrect data was found in the address, head step or shift value of the request data.	Correct the request data.
1280 (500н)	Host board memory access error	Replace the MELSECNET/H board.
1281 (501н)	Unable to access I/O port	Replace the MELSECNET/H board.
4110 (100Ен)	DLL non-load error	
8204 (200Сн)	Request cancel	
8205 (200Dн)	Drive name error	
8206 (200Ен)	First step error	
8207 (200Fн)	Parameter type error	
8208 (2010⊦)	File name error	
8209 (2011 _H)	Registering/release/set status error	
8210 (2012 _H)	Detailed condition division error	
8211 (2013н)	Step condition error	
8212 (2014 _H)	Bit device condition error	
8213 (2015н)	Parameter setting error	
8215 (2017н)	Keyword error	Exit the program and restart the PC.
8216 (2018 _H)	Read/write flag error	Setup the package again. Consult with the dealer regarding the problem.
8217 (2019⊦)	Refresh method error	
8218 (201Ан)	Buffer access method error	
8219 (201Вн)	Start mode/stop mode error	
8220 (201Сн)	Written clock data error	
8221 (201Dн)	Online data write error	
8223 (201Fн)	Trace time error	
8224 (2020н)	First I/O number error	
8225 (2021н)	First address error	
8226 (2022н)	Pattern error	
8227 (2023н)	SFC block number error	
8228 (2024н)	SFC step number error	

Return value (HEX)	Error definition	Corrective action
8229 (2025н)	Step number error	
8230 (2026н)	Data error	
8231 (2027 _H)	System data error	
8232 (2028 _H)	TC set value number error	
8233 (2029н)	Clear mode error	
8234 (202Ан)	Signal flow error	
8235 (202B _H)	Version administration error	
8236 (202Сн)	Module has been registered	
8237 (202D _H)	PI type error	
8238 (202E _H)	PI No error	
8239 (202F _H)	PI number error	
8240 (2030н)	Shift error	
8241 (2031 _H)	File type error	
8242 (2032н)	Specified module error	
8243 (2033н)	Error check flag error	Exit the program and restart the PC.
8244 (2034н)	Step RUN-operation error	Setup the package again. Consult with the dealer regarding the problem.
8245 (2035н)	Step RUN data error	
8246 (2036н)	Step RUN-time error	
8247 (2037н)	Program RUN inside writing error to E ² ROM	
8248 (2038н)	Clock data read/write error	
8249 (2039н)	Trace non-completion	
8250 (203Ан)	Registration clearness flag error	
8251 (203Вн)	Operation error	
8252 (203Сн)	The number of station error	
8253 (203Dн)	The number of repeat error	
8254 (203Ен)	The acquisition data selection error	
8255 (203F _H)	The number of SFC cycle error	
8258 (2042н)	The scheduled time setting error	
8259 (2043н)	Function count error	
8260 (2044н)	System information error	

Return value (HEX)	Error definition	Corrective action
8262 (2046н)	Function number error	
8263 (2047н)	RAM operation error	
8264 (2048н)	Boot former ROM forwarding failure	
8265 (2049н)	Boot former transfer mode specification error	
8266 (204Ан)	Not enough memory	
8267 (204Вн)	Backup drive (former boot drive) ROM error	
8268 (204Сн)	Block size error	
8269 (204Dн)	RUN-time detaching error	Exit the program and restart the PC.
8270 (204Ен)	Module has already registered	Setup the package again. Consult with the dealer regarding the problem.
8271 (204Fн)	Password registration data full error	Solical marting again regarding the problem.
8272 (2050⊦)	Password unregistration error	
8273 (2051н)	Remote password error	
8274 (2052н)	IP address error	
8275 (2053н)	Error (argument when requesting) outside time-out value range	
8276 (2054н)	Instruction cast undetection	
8277 (2055н)	Trace execution type error	
8278 (2056н)	Version error	
16386 (4002н)	A request that cannot be processed was received.	Change the request destination.
16432 (4030н)	The specified device type does not exist.	Check the specified device type.
16433 (4031н)	The specified device number is out of range.	Check the specified device number.
16448 (4040н)	The module does not exist.	Do not issue a request that generated an error to the specified special function module.
16449 (4041н)	The number of device points is out of range.	Check the head address and number of access points and access within the existing range.
16450 (4042н)	Corresponding module error	Check if the specified module is operating normally.
16451 (4043н)	The module does not exist at the specified location.	Check the head I/O number of the specified module.
−1 (FFFF _H)	Path error The specified path is invalid.	Check the path pointer that was returned by the mdOpen function.
−2 (FFFEн)	Device number error The specified device number is out of range.	Check the head device number for the specified device.
-3	Device type error	Check if the device type used is in the device list.
(FFFD _H)	The specified device type is invalid.	·
−4 (FFFC _H)	CPU error An invalid station was specified.	Check the status of the communication station. Check the specified station number.
(1 1 1 CH)	Size error	ondor the specified station number.
– 5	The device number and size are over the device range.	Check the specified device size.
(FFFB⊦)	Access was attempted using an odd device.	Check the device number and size.
	The device number and size are over the range for the same block.	

Return value (HEX)	Error definition	Corrective action
−6 (FFFA _H)	Number of block error The number of blocks specified in dev[0] for device random read/write is out of range.	Check the number of blocks specified in dev[0].
−8 (FFF8 _H)	Channel number error The channel number specified in the mdOpen function is invalid.	Check the specified channel number.
−11 (FFF5н)	Insufficient buffer area The read area size of the read data storage array variable is too small.	Check the read size and read data destination size.
–12 (FFF4 _H)	Block error The specified block number of the extension file register is invalid.	Check the block number (device type) of the extension file register.
–13 (FFF3н)	Write protect error The specified block number of the extension file register is overlapping with the write protect area of the memory cassette.	Check the block number (device type) of the extension file register. Check the write protect DIP switch of the accessed memory cassette.
−14 (FFF2н)	Memory cassette error No memory cassette is loaded to the accessed CPU, or an incorrect memory cassette is loaded.	Check the accessed memory cassette.
–15 (FFF1н)	Read area length error The read area size of the read data storage array variable is too small.	Check the read size and read data destination size.
–16 (FFF0⊦)	Station number error The specified station number is out of range.	Check the specified station number.
–17 (FFEFн)	All-station specification error A function that does not support all-station specification was specified.	Check if all-station specification is enabled for the function.
–18 (FFEEн)	Remote instruction error A code that is not designated was specified.	Check the specified code.
–19 (FFEDн)	SEND/RECV channel number error The channel number specified with the SEND/RECV function is out of range.	Specify the channel number within the range (0 to 8).
—21 (FFEBн)	Error in gethostbyname () An error occurred in the function, gethostbyname ().	Check if the specified host name exists in the HOSTS file.
−24 (FFE8 _H)	Time out error in select () A time out error occurred in the function, select ().	Check if MGW server service has been started on the server machine. Check if normal Ethernet communication can be performed with the server machine.
–25 (FFE7н) –26 (FFE6н)	Error in sendto () An error occurred in the function, sendto (). Error in recvfrom (). An error occured in the function, recvfrom ().	
–28 (FFE4н) –29 (FFE3н)	Error response reception An error response was received. Reception data length over Too much data was received.	Check if normal Ethernet communication can be performed with the server machine.
−30 (FFE2 _H)	Sequence number error The received sequence number is abnormal.	
–31 (FFE1н)	DLL load error An attempt to load a DLL, which is necessary to execute the function, has failed.	Setup the package again.
–32 (FFE0⊦)	Other task/thread is occupying the resource and the resource is not released within 30 seconds.	Restart the PC.
–33 (FFDFн)	Incorrect access destination The setting for the communication destination is incorrect.	Restart the PC.
–34 (FFDEн)	Registry open error An attempt to open the registry has failed.	Restart the PC.
–35 (FFDDн)	Registry read error An attempt to open the registry has failed.	Restart the PC.
–36 (FFDCн)	Registry write error An attempt to write to the registry has failed.	Restart the PC.
–37 (FFDBн)	Communication initialization setting error An attempt to perform initial setting for communication has failed.	Retry. There may be a possibility of insufficient memory. Terminate other application(s) currently running. Check if the system is operating normally. Reboot the system.

Return value	Error definition	Corrective action
(HEX)		
–38 (FFDA⊦)	Ethernet communication error	Retry. Check if the communication destination is correctly set by the utility.
–39 (FFD9н)	COM communication setting error An attempt to set for COM communication has failed.	There may be a possibility of insufficient memory. Terminate other application(s) currently running. Check if the system is operating normally. Reboot the system.
-41	COM control error	Retry.
(FFD7 _H)	Control cannot be performed properly during COM communication.	Check if the system is operating normally. Reboot the
-42 (FEDS.)	Close error	system.
(FFD6н) -43	Communication cannot be closed. ROM operation error	
(FFD5 _H)	A TC setting value was written to the CPU during ROM operation.	Change the TC setting value during RAM operation.
−44 (FFD4н)	Ladder logic test communication setting error An attempt to set for Ladder logic test communication has failed.	Retry. Check if the communication destination is correctly set by the utility. There may be a problem of insufficient memory. Terminate other application(s) currently running.
-45	Ethernet control error	Retry.
(FFD3⊦)	Control cannot be performed properly during Ethernet communication.	Check if the system is operating normally.
-48 (FFD0н)	TEL error.	Exit the program and restart the PC. Setup the package again. Consult with the dealer regarding the problem.
-50	Opened path maximum value over	Close several paths.
(FFCE _H)	The number of open paths exceeds the maximum value (32).	· ·
-51 (EECD:)	Exclusive control error	Retry.
(FFCD _H)	An error occurred in the exclusive control. See manuals listed below.	Check if the system is operating normally.
–478 to –3839 (F101н to FE22н)	Q corresponding MELSECNET/H network system reference manual (PLC to PLC networks)	Same as left.
–2174 (F782н)	Destination station number specification error The destination station number for the processing request is specifying the host.	Check the destination station number.
–2175 (F781н)	Request destination network number error The number of the destination network to which processing is requested is incorrect.	Check the request destination network number.
–24957 (9Е83н)	Device points error The number of points specified for the destination station is out of device range. When specifying the bit device, the device number is not a multiple of 8. (It is checked by the destination link module.)	Check the size.
-24958 (9E82н)	Device number error The device number specified for the destination station is out of range. When specifying the bit device, the device number is not a multiple of 8. (It is checked by the destination link module.)	Check the device number.
–24959 (9Е81н)	Device type error The device type specified for the destination station is invalid. (It is checked by the destination link module.)	Check the device type.
–25056 (9Е20н)	Received a request that the interface board of the request destination cannot process.	Do not execute the function other than mdTypeRead to the other station interface board.
-26334 (9922н)	Board reset error Other process has executed a board reset using the same channel while other station is being accessed.	Access to the other station again.
-26336 (9920н)	Routing to other loop was performed to the MELSECNET/H board.	Change the routing destination to AnUCPU, QnACPU and QCPU.
-28151 (0200-)	APS No. error	Change the equipment at the process request
(9209н) -28156 (9204н)	An incorrect response data was received. Shared memory switch error	destination. Remove other optional board. Replace the MELSECNET/H board.
—28158 (9202н)	WDT error	Change the value in the watchdog timer monitoring time setting of the "Driver" screen for the MNETH utility. Reboot the PC.

14 TROUBLESHOOTING

This chapter describes how to determine the cause of trouble that may occur during system construction as well as appropriate corrective actions.

14.1 When Performing Troubleshooting

Ideally occurrence of trouble should be kept to a minimum in order to startup the system effectively. However, once an error occurs, it is important that we identify the cause as quickly as possible.

The following are the three basic points that must be kept in mind when performing troubleshooting.

(1) Visual check

Check the following points.

- (a) Movement of the external device (status when stopped or during operation)
- (b) On/off status of power supply
- (c) Wiring condition (cable)
- (d) LED display status (power supply display LED)

After checking (a) through (d), connect the external device and check the operation of the user program.

(2) Confirming the error

Examine how the error status changes by the following operation.

- (a) Change the input status and check if the change can be read correctly using the test program.
- (b) Repeat on/off of output and check if the status of the external device changes accordingly.

(3) Narrowing the range

Based on the steps (1) and (2) above, deduce the range of error location as one of the following.

- (a) PC side or external device side
- (b) PC main body or board
- (c) Cable
- (d) User program

14.2 Cause Determination Methods by Type of Trouble

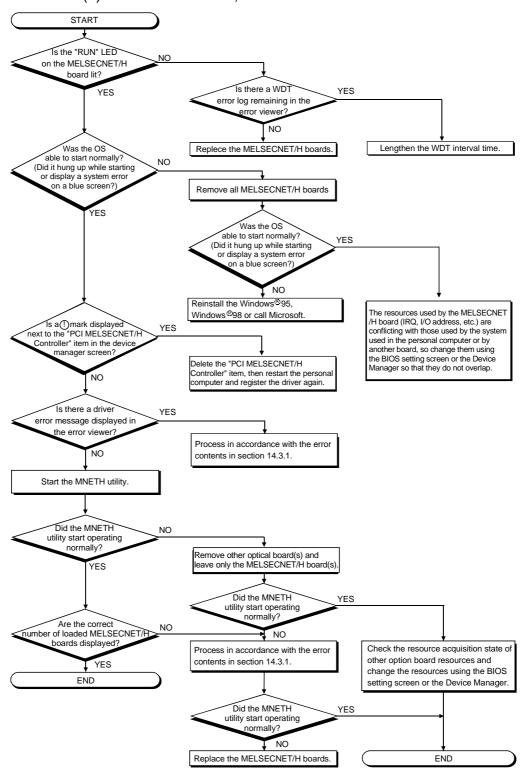
When an error occurs, use the table below to find the section that describes an appropriate method to determine the cause.

No.	Error content	Cause determination method
1	MELSECNET/H board did not operate normally upon startup.	See the flowchart in 14.3.
2	Data link is not achieved after the MELSECNET/H board and control station as well as other normal stations were connected.	See the flowchart in 14.4.
3	 An error occurred while conducting data link. An unexpected value is input to a specific link device (B, W, X, Y). Data cannot be written or read even though device access has been performed using communication functions with the user program. Communication is occasionally disabled while running the user program. The system went down (the blue screen) or a system reset has been executed in the Operating Systems. 	See the flowchart in 14.5.

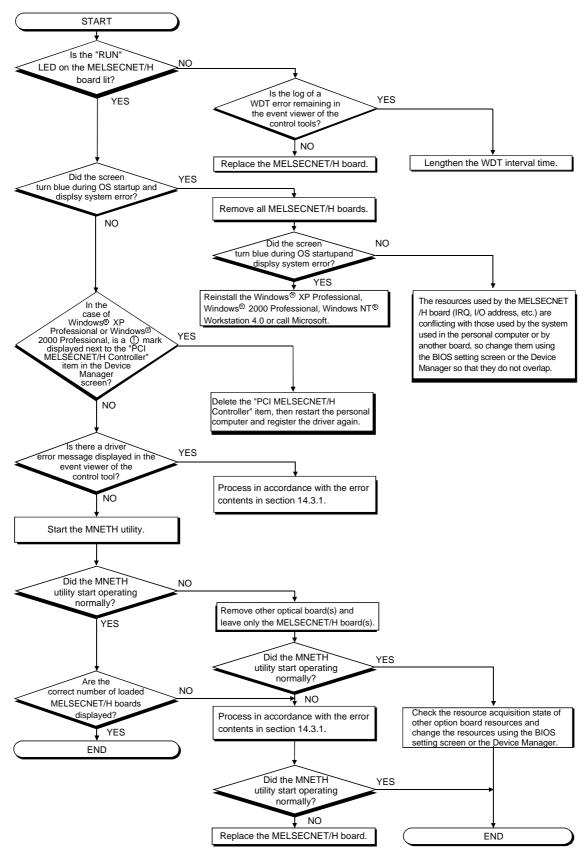
14.3 Flowchart to Use when MELSECNET/H Board did not Operate Normally

The following describes a flowchart that must be checked for each PC when an MELSECNET/H board did not operate normally upon startup.

(1) For Windows® 95, Windows® 98



(2) For Windows® XP Professional, Windows® 2000 Professional, Windows NT® Workstation 4.0



14.3.1 Table of error event messages that may occur during driver startup

The following table lists the errors displayed in the event viewer/error viewer.

(1) Windows® 95, Windows® 98

Event ID (0 to FFFF _H)	Error content	Corrective action
257 (101н)	The MELSECNET/H board is not loaded, or the I/O address is overlapping with other hardware.	Change the I/O address setting for the MELSECNET/H board or other hardware. * 1
258 (102н)	No response from hardware.	Replace the MELSECNET/H board.
259 (103н)	The number of MELSECNET/H boards detected exceeds the maximum number that can be loaded.	Remove MELSECNET/H boards until the number falls within the maximum limit.
260 (104н)	The MELSECNET/H board conflicts with other device.	Check for overlapping setting with other optional
264 (108н)	An attempt to perform interrupt registration has failed.	board.

(2) Windows® XP Professional, Windows® 2000 Professional, Windows NT® Workstation 4.0

Event ID	Error content	Corrective action
(0 to FFFFн)	5 11 14 14 14 14 15 15 15 15 15 15 15 15 15 15 15 15 15	D
0 (Он)	Failed to start the MELSEC network service.	Restart the PC. If the error persists, reinstall Windows® XP Professional, Windows® 2000
	Failed to register the main thread of service, or failed to set	Professional, Windows NT® Workstation 4.0.
	the service status.	Reinstall the driver package. If the error still
256 (100н)	The driver could not be executed because an error occurred	occurs, reinstall Windows® XP Professional,
	during driver startup.	Windows® 2000 Professional, Windows NT®
		Workstation 4.0.
257 (101н)	The MELSECNET/H board is not loaded, or the I/O address is	Change the I/O address setting for the
	overlapping with other hardware.	MELSECNET/H board or other hardware. * 1
258 (102н)	No response from hardware.	Replace the MELSECNET/H board.
230 (102H)	The number of MELSECNET/H boards detected exceeds the	Remove MELSECNET/H boards until the number
259 (103н)	maximum number that can be loaded.	falls within the maximum limit
260 (104н)		Check for overlapping setting with other optional
	The board conflicts with other device.	board.
261 (105н)	An attempt to create a device object has failed.	Increase the system memory.
, ,	An attempt to link the device name has failed.	Reinstall Windows® XP Professional,
262 (106н)		Windows® 2000 Professional, Windows NT®
		Workstation 4.0.
263 (107н)	An attempt to secure dual-port memory has failed.	Check for overlapping setting with other optional
264 (108н)	An attempt to perform interrupt registration has failed.	board.
265 (109н)	An error occurred when reading I/O.	Replace the MELSECNET/H board.
266 (10Ан)	An error occurred when writing I/O.	
	An error occurred during memory transfer.	Reinstall Windows® XP Professional,
267 (10Вн)		Windows® 2000 Professional, Windows NT®
		Workstation 4.0.
268 (10Сн)	An error occurred during receiving process.	
269 (10Dн)	An error occurred during sending process.	
270 (10Ен)	An error occurred during interrupt process.	
271 (10Fн)	An error occurred during UNLOAD process.	
272 (110н)	An error occurred during Startlo process.	Reinstall Windows [®] XP Professional, Windows [®] 2000 Professional, Windows NT [®] Workstation 4.0.
273 (111н)	An error occurred during critical session.	
274 (112н)	An error occurred during IoTimer process.	
275 (113н)	An error occurred during loCompletion process.	
276 (114н)	An error occurred during DPC process.	
277 (115н)	An error occurred when opening registry database.	
278 (116н)	An error occurred when reading from registry database.	
279 (117н)	An error occurred when writing to registry database.	Occurs when the driver for the MELSECNET/H board was installed first. After installing SW0DNC-MNETH-B, restart the computer and confirm that this error does not occur. Increase the system memory and disk
		capacity.

Event ID 0 to FFFF _H	Error content	Corrective action
280 (118н)	A request that cannot be processed was received from other station.	_
281 (119н)	Retry transmission was executed during transmission process.	_
33027 (8103н)	The driver is not yet started, or an error occurred while opening the driver.	Correct the cause of the driver error, then restart the PC.
33029 (8105н)	An error occurred while resetting the MELSECNET/H board. One of the following two conditions is suspected as the cause. 1) The common memory area used by the MELSECNET/H board may be in contention with other device. 2) No response was received from the MELSECNET/H board.	Check for overlapping setting with other optional board. Perform memory and I/O diagnosis using the MNETH utility. If the error persists, replace the MELSECNET/H board.

^{* 1 :} If an event error occurs in event viewer or error viewer, make the following setup setting on the PC. (Limited to the PC includes those setup setting items.)

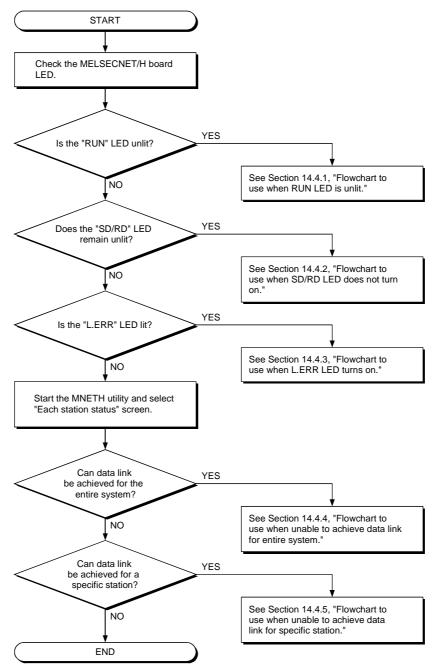
Example) BIOS Setup Utility

 $\begin{array}{ll} \text{Plug \& Play O/S} & : [\text{YES}] \rightarrow [\text{No}] \\ \text{Reset Configuration Data} : [\text{No}] \rightarrow [\text{YES}] \end{array}$

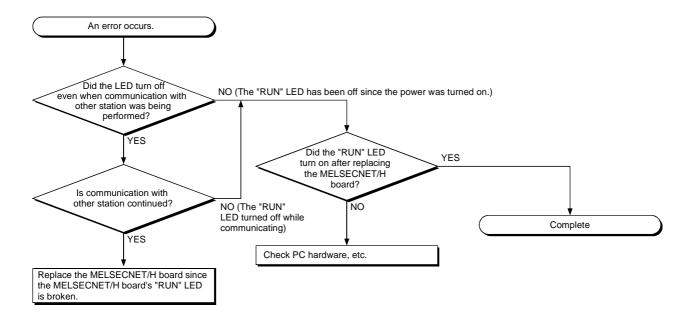
Then, restart the PC.

14.4 Flowchart to Use when Data Link is not Achieved

The following describes a flowchart that must be checked when no data link is achieved after the MELSECNET/H board and Control station as well as normal stations were connected.

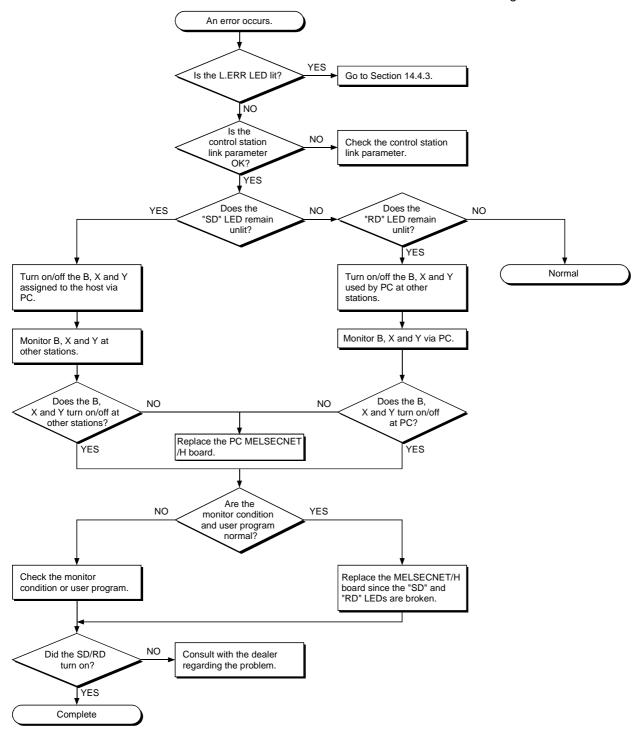


14.4.1 Flowchart to use when RUN LED is unlit

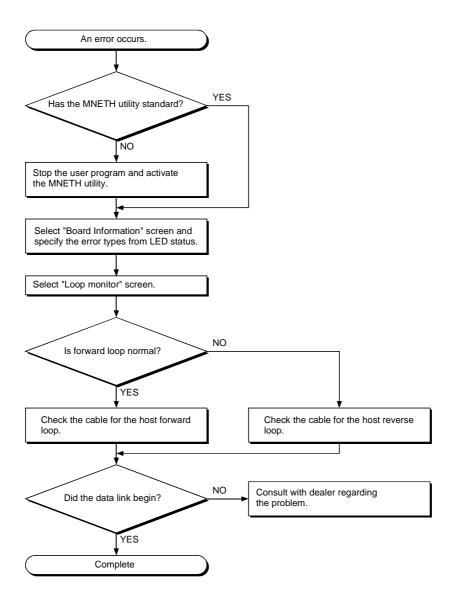


14.4.2 Flowchart to use when SD/RD LED does not turn on

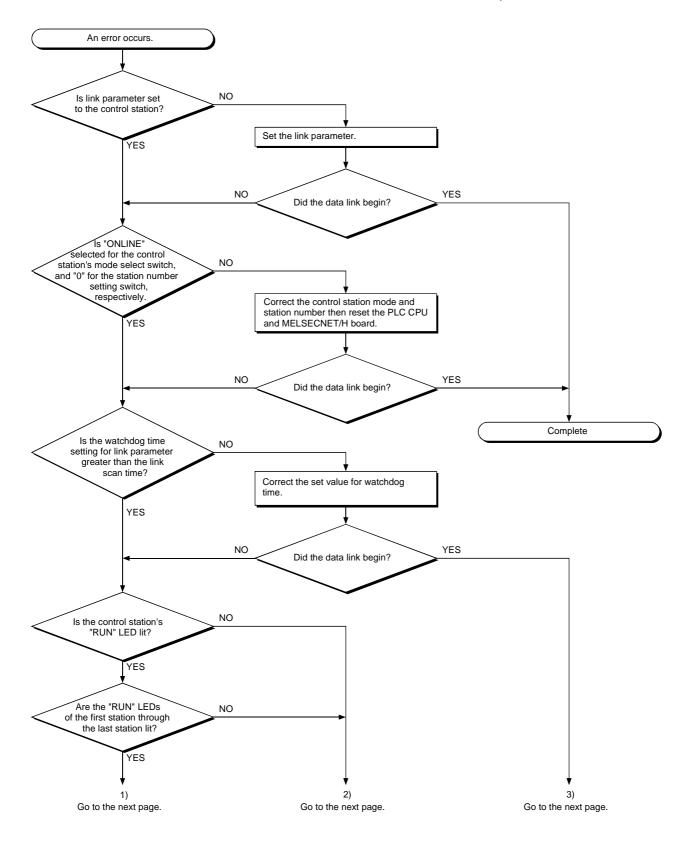
The board information screen of MNETH utility displays SD and RD LED status. This function is the same as the MELSECNET/H board's LED messages.



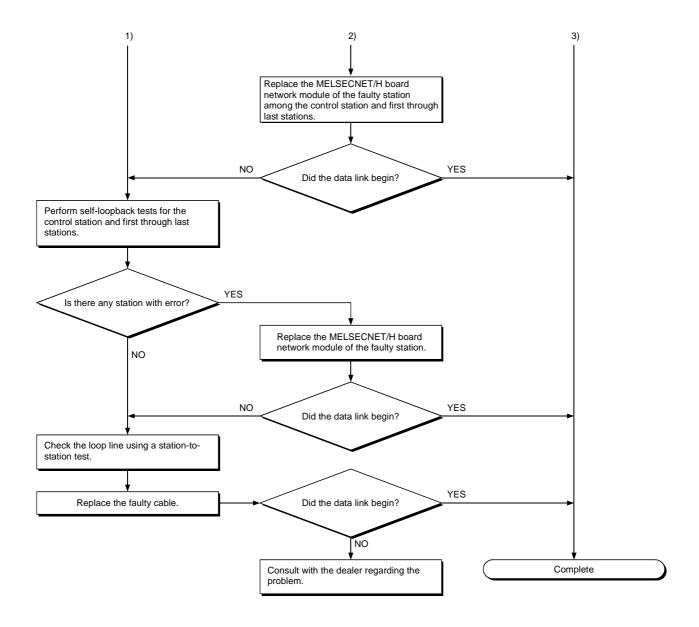
14.4.3 Flowchart to use when L.ERR. LED turns on



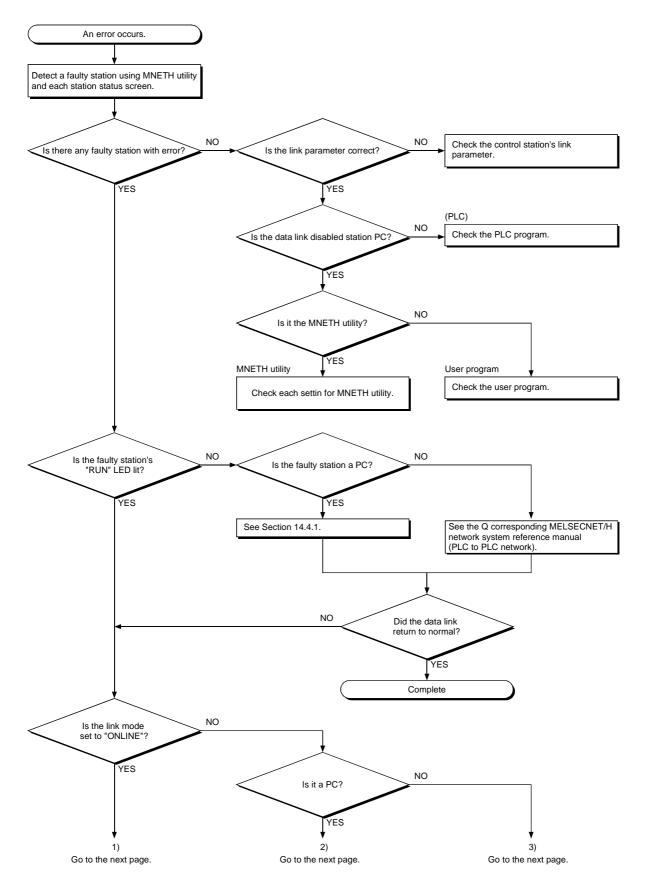
14.4.4 Flowchart to use when unable to achieve data link for entire system

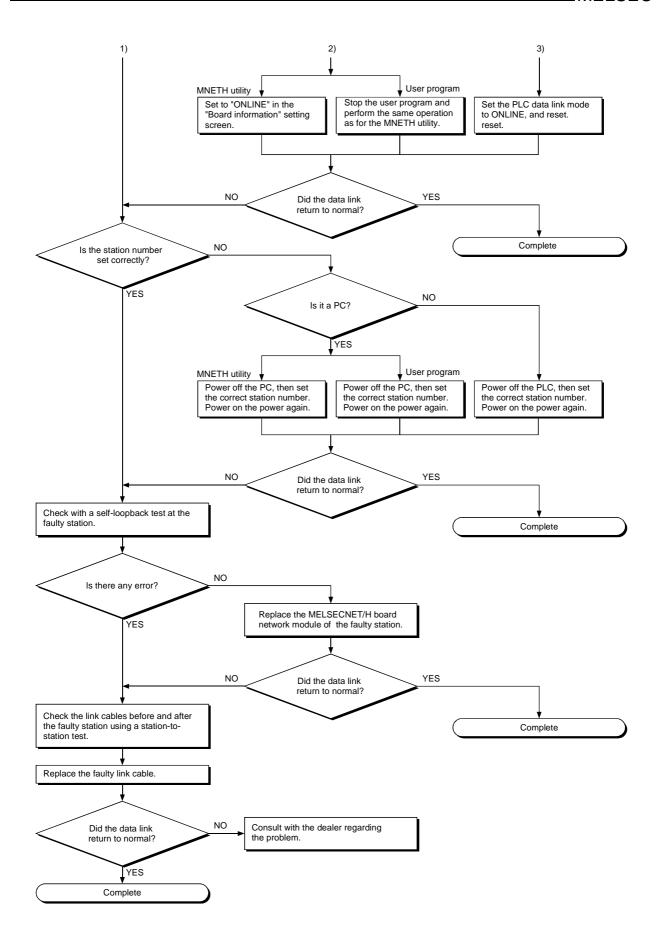


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14.4.5 Flowchart to use when unable to achieve data link for specific station





14.5 Flowchart to Use when Error Occurred During Data Link

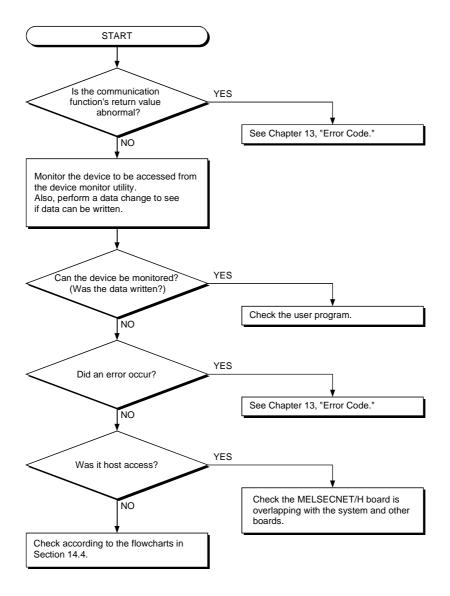
The following explains corrective actions when an error occurred during data link.

14.5.1 Flowchart to use when unexpected value is input to specific link device

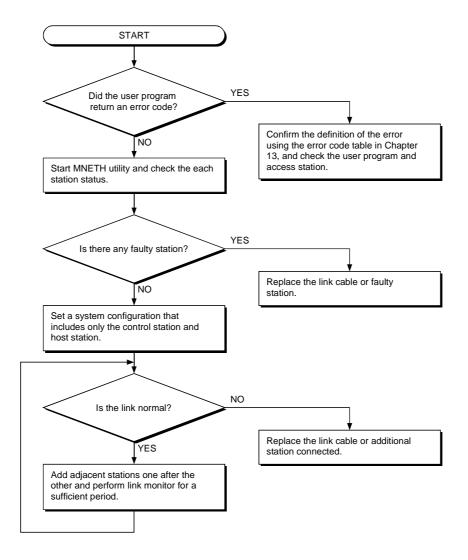
Check the following items.

- (1) Check for a station with link error using the each station status screen.
- (2) Check the link parameter assignment range at the control station.
- (3) Check the device range used in the PLC program at the PLC.
- (4) Check, in the user program, argument data for the Data Link function accessing the specific link device.

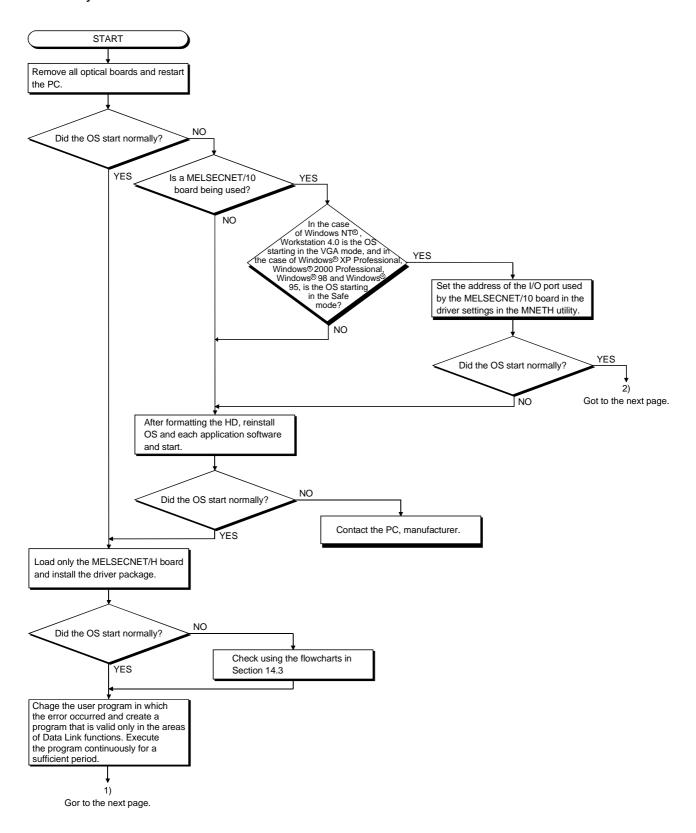
14.5.2 Flowchart to use when data cannot be written or read in user program



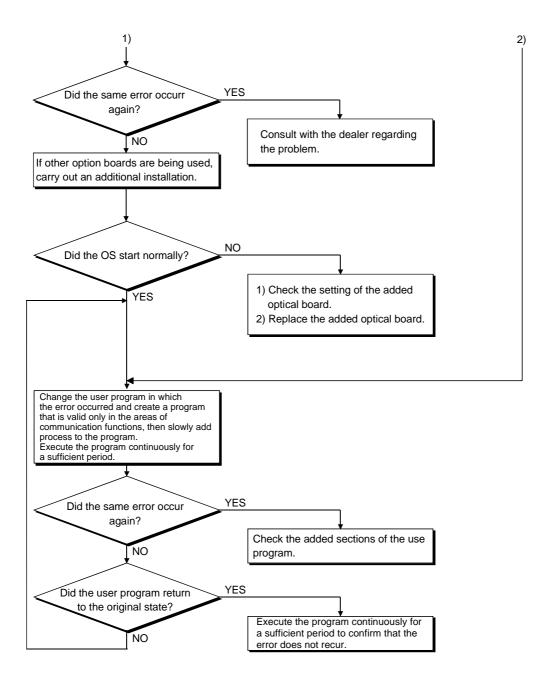
14.5.3 Flowchart to use when communication is disabled from time to time during user program execution



14.5.4 Flowchart to use when system reset or system hang-up occurred in Operating System



14 - 17



14 - 18

14.6 Information Needed when Calling with Inquiry

The following conditions and status must be reported when calling us with an inquiry regarding a damaged board.

- Error state (be specific)
 Example) The system does not start during the startup process after turning on the power, displaying a "board Not response" message.
- (2) PC manufacturer, PC name/model
- (3) OS name: Windows® XP Professional, Windows® 2000 Professional, or other
- (4) Loading slot position
- (5) Use of optional boards made by other companies
- (6) If other companies' optional boards are used, provide us with the following information.
 - · Board model name and board manufacturer
 - Memory address (head address and occupied size), I/O address (head address and occupied size) IRQ number, DMA number
- (7) Whether or not the problem was checked with other PCs

14 - 19

App.

APPENDIX

Set Channel No

Appendix 1 Channel No. Assignment Method

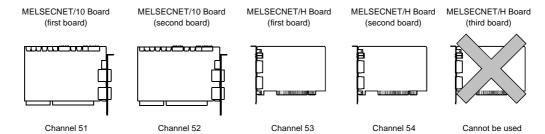
This section explains the method for assigning a channel No. in the MELSECNET/H board.

POINT

- (1) The number of boards that can be installed in one personal computer is 4 boards (Total number of both MELSECNET/10 boards and MELSECNET/H boards).
- (2) Set the channel No. in the MELSECNET/H boards and MELSECNET/10 boards so that they do not overlap.
- (1) If only the MELSECNET/H board is installed in a personal computer
 - (a) Automatic assignment of channel No. The channel No. is automatically assign to MELSECNET/H boards installed in a personal computer in the order of the PCI slot No., from 51 to 54. Check your personal computer's manual concerning the order of the PCI slot numbers.
 - (b) User specified assignment method
 In user specified assignment, the user changes the channel No. in the
 "Channel No. Setting" screen in the "Board List" screen of the MNETH utility.
 After the change, the set assignment in "Channel No. Setting" becomes valid.
- (2) If the MELSECNET/10 board is used in the personal computer Select the following items used by the MELSECNET/10 board in the "Driver" (Combination setting with the MELSECNET/10 board), then restart the personal computer.
 - (a) The channel is used from channel 51 with the MELSECNET/10 board detected automatically and the channel of the remainder is used the MELSECNET/H board.

If the item "The channel is used from channel 51 with the MELSECNET/10 board detected automatically and the channel of the remainder is used the MELSECNET/H board." is selected, channel numbers are assigned on a priority basis from the MELSECNET/10 board installed in the personal computer.

(Note) If 2 MELSECNET/10 boards and 3 MELSECNET/H boards are installed in one personal computer, if this item is selected, the third MELSECNET/H board will become unusable as shown in the figure below, so exercise caution.

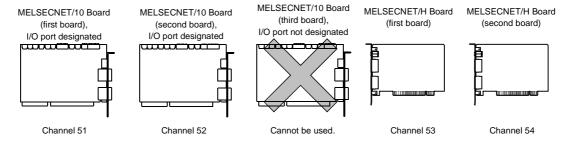


App - 1 App - 1

(b) The channel is used from 51 with the MELSECNET/10 board of specified I/O port and the channel of the remainder is used the MELSECNET/H board.

If the item "The channel is used from 51 with the MELSECNET/10 board of specified I/O port and the channel of the remainder is used the MELSECNET/H board." is selected, channel numbers are assigned on a priority basis from the MELSECNET/10 board designated by the I/O port. The channel numbers not used by the MELSECNET/10 board are used by the MELSECNET/H boards.

(Note) If 3 MELSECNET/10 boards and 2 MELSECNET/H boards are installed in one personal computer, if this item is selected, the MELSECNET/10 board not designated by an I/O port cannot be used, so exercise caution.



Set Channel No.

Set Channel N

App.

REMARK

If the item "The channel is used from channel 51 with the MELSECNET/10 board detected automatically and the channel of the remainder is used the MELSECNET/H board." or " The channel is used from 51 with the MELSECNET/10 board of specified I/O port and the channel of the remainder is used the MELSECNET/H board." is selected, and MELSECNET/10 boards are used, MELSECNET/10 channel numbers are assigned in dual-port address order.

App - 2 App - 2

Appendix 2 Cautions when Using MX Links

This section explains concerning cautions when using the MELSECNET/H board in MX Links.

Appendix 2.1 Cautions when accessing a multiple PLC system

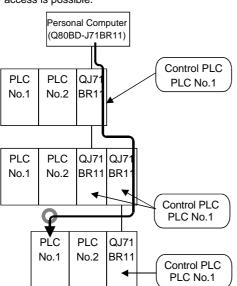
This section explains concerning cautions when using the MELSECNET/H board in MX Links and accessing a multiple PLC system.

(1) About accessing a multiple PLC system

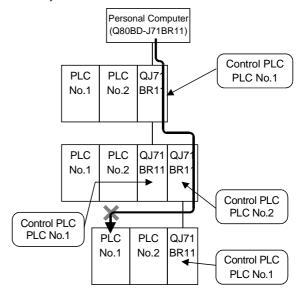
If you are using MX Links to access other stations, if the relay station in the multiple PLC system is the same as a control PLC, up to 8 network systems can be accessed.

If the relay station differs from the control PLC, the network system in front of it cannot be accessed.

(a) If the relay station and control PLC are the same, access is possible.



(2) If the relay station's control PLC is a different board, network systems ahead of that station cannot be accessed.



App - 3 App - 3

Appendix 3 Using the Manual (PDF Data)

The MELSECNET/H interface board user's manual is included in the same CD-ROM as the SW0DNC-MNETH-B software package.

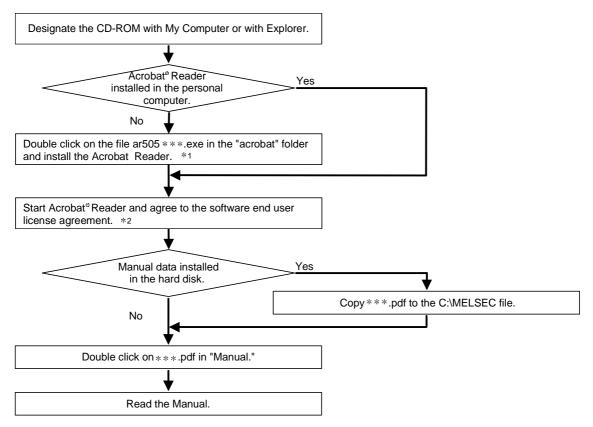
If the manual is being read directly from the CD-ROM and used, it can be installed on the hard disk and used internally. (It can be used as the user selects.)

The manual consists of PDF data, so it's PDF data can be read with the Acrobat Reader provided by Adobe Systems.

Appendix 3.1 Procedure up the point where the manual can be read

The following explains the procedure up to manual reading and details of the Manual folder.

(1) Procedure up to manual reading



- * 1: 8 MB of available hard disk space is required.
- * 2: The PDF data in the "Manual" folder can be seen when you click "I Agree" to the software end user license agreement.

App - 4 App - 4

(2) Details of the Manual folder

For details on the contents of the Manual folder, refer to readme.txt in the CD-ROM.

The storage location of readme.txt is as follows:

```
Manual

Japanese

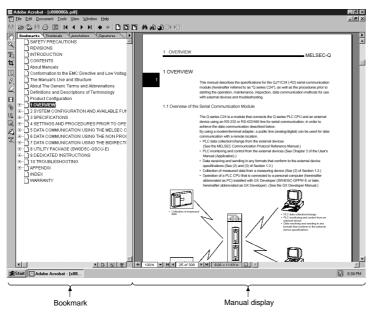
readme.txt (The following explains the files in the Japanese folder.)

English

readme.txt (The following explains the files in the English folder.)
```

Appendix 3.2 Manual operation

The manual is read from the following screen.



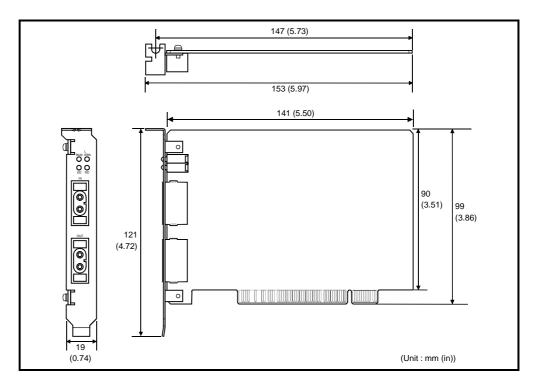
Click on the Contents items in the "Bookmark" with the mouse to change the contents displayed in the "Manual Display".

App - 5

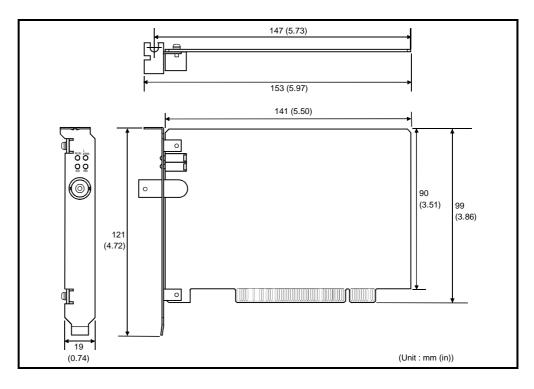
APPENDIX

Appendix 4 External Dimensions

Appendix 4.1 Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21GE



Appendix 4.2 Q80BD-J71BR11



App - 6

WARRANTY

Please confirm the following product warranty details before starting use.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the dealer or Mitsubishi Service Company. Note that if repairs are required at a site overseas, on a detached island or remote place, expenses to dispatch an engineer shall be charged for.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place.

Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

- (1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
- (2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
 - 1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
 - 2. Failure caused by unapproved modifications, etc., to the product by the user.
 - 3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
 - 4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
 - 5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
 - 6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
 - 7. Any other failure found not to be the responsibility of Mitsubishi or the user.

2. Onerous repair term after discontinuation of production

- (1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
- (2) Product supply (including repair parts) is not possible after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of chance loss and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to damages caused by any cause found not to be the responsibility of Mitsubishi, chance losses, lost profits incurred to the user by Failures of Mitsubishi products, damages and secondary damages caused from special reasons regardless of Mitsubishi's expectations, compensation for accidents, and compensation for damages to products other than Mitsubishi products and other duties.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

6. Product application

- (1) In using the Mitsubishi MELSEC programmable logic controller, the usage conditions shall be that the application will not lead to a major accident even if any problem or fault should occur in the programmable logic controller device, and that backup and fail-safe functions are systematically provided outside of the device for any problem or fault.
- (2) The Mitsubishi general-purpose programmable logic controller has been designed and manufactured for applications in general industries, etc. Thus, applications in which the public could be affected such as in nuclear power plants and other power plants operated by respective power companies, and applications in which a special quality assurance system is required, such as for Railway companies or National Defense purposes shall be excluded from the programmable logic controller applications.

Note that even with these applications, if the user approves that the application is to be limited and a special quality is not required, application shall be possible.

When considering use in aircraft, medical applications, railways, incineration and fuel devices, manned transport devices, equipment for recreation and amusement, and safety devices, in which human life or assets could be greatly affected and for which a particularly high reliability is required in terms of safety and control system, please consult with Mitsubishi and discuss the required specifications.



MELSECNET/H Interface Board

User's Manual (For SW0DNC-MNETH-B)

MODEL	SW0-MNETH-B-U-E
MODEL CODE	13JR24
SH(NA)-080128-E(0212)MEE	



HEAD OFFICE : 1-8-12, OFFICE TOWER Z 14F HARUMI CHUO-KU 104-6212, JAPAN NAGOYA WORKS : 1-14 , YADA-MINAMI 5 , HIGASHI-KU, NAGOYA , JAPAN

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